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**U.S. Army Corps
of Engineers**
New Orleans District

**CULTURAL RESOURCES SURVEY OF
A PROPOSED CONSTRUCTION AREA
ALONG THE VERMILION RIVER,
LAFAYETTE PARISH, LOUISIANA**

Final Report

January 2000

**Coastal Environments, Inc.
1260 Main Street
Baton Rouge, Louisiana**

**Prepared for:
U.S. Army Corps of Engineers
New Orleans District
(Contract No. DACW29-97-D-0017,
Delivery Order No. 0012)**

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REPLY TO
ATTENTION OF:

January 18, 2000

Planning, Programs, and
Project Management Division
Environmental Planning and
Compliance Branch

To The Reader:

This cultural resource effort was designed and guided by the U.S. Army Corps of Engineers, New Orleans District, as part of our cultural resource management program. The author conducted an intensive pedestrian survey and testing investigation of a proposed floodwall project along the Vermilion River in Lafayette Parish. We concur with the author's findings and recommendations. The Louisiana State Historic Preservation Officer also concurs with authors' conclusions and recommendations.

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Acting Chief, Environmental
Planning and Compliance
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**CULTURAL RESOURCES SURVEY OF A PROPOSED
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by
Katherine M. Roberts

January 2000

Prepared for:
U.S. Army Corps of Engineers
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Coastal Environments, Inc.
1260 Main Street
Baton Rouge, Louisiana



Richard A. Weinstein
Principal Investigator

ABSTRACT

This study presents the results of a cultural resources survey conducted by Coastal Environments, Inc., (CEI) along the right-of-way (ROW) for a proposed flood wall located on the west bank of the Vermilion River in the city of Lafayette, Lafayette Parish, Louisiana. The flood wall is part of a larger project undertaken by the U.S. Army Corps of Engineers (USACE), New Orleans District, to construct flood-control devices along the Vermilion and its tributaries. The study area extends for 823 m along the Vermilion River, encompasses 12,345 m² (3.05 acres), and includes part of an existing site, 16LY55. Fieldwork for this project, consisting of an intensive pedestrian survey in which auger borings were excavated every 10 meters, was conducted by a three-person team.

Remains of a previously recorded site (i.e., Teche Street—16LY55), as well as what has been designated a new site (i.e., Demanade Boulevard—16LY99), were encountered. Auger borings containing probable midden deposits, and bankline profiles with artifact-bearing, old A horizons, indicate the presence of intact cultural strata at both sites. At the Demanade Boulevard site, sherds of Baytown Plain, *var. unspecified* as well as of Baytown Plain, cf. *var. Marksville*, and a Scallorn-like point indicate that two potential occupations can be recognized. The first, between A.D. 1 and A.D. 200, can be tied to the early Marksville period, based on the probable sherds of Baytown Plain, cf. *var. Marksville*. The late occupation most likely dates to some time within the Coles Creek period (ca. A.D. 700 to 1200), based on the Scallorn-like arrow point. The unspecified sherds of Baytown Plain probably also are associated with this late occupation. Ceramic data from one bankline profile at the Teche street site suggest that the main occupation occurred between A.D. 200 and A.D. 500 (late Marksville through early Baytown periods). Small quantities of ceramics dating between A.D. 1200 and 1400, indicative of a Plaquemine occupation, were also recovered. Both sites are considered potentially eligible for inclusion in the National Register of Historic Places (NRHP). It is recommended that further work involving test excavation and site delineation be conducted at the sites in order to gather additional data that can be utilized in providing definitive NRHP eligibility determinations.

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CHAPTER 1

INTRODUCTION

Project Location and Description

Coastal Environments, Inc., (CEI) was contracted by the New Orleans District of the U.S. Army Corps of Engineers (USACE) to conduct a cultural resources survey along a short stretch of land situated on the west bank of the Vermilion River (Figure 1). This location encompasses a portion of the Demonade Park subdivision in Lafayette, Louisiana, and is the location of a proposed flood wall to be constructed by the USACE. The survey area extends 2,700 ft (823 m) along the river and is 50 ft (15 m) wide. The maximum total area encompasses 135,000 ft² (12,345 m²) (Figure 2). Fieldwork for this project, consisting of an intensive pedestrian survey, the systematic excavation of a series of auger borings, and the clearing of selected bankline profiles, was conducted by a three-person survey team.

While neither the centerline of the proposed levee nor the boundaries of the ROW had been identified on the ground prior to the field investigations, a line of pin flags was present in the northern portion of the project area, and these appeared to follow the route of the ROW. It was decided to utilize these flags as the axis along which the auger borings would be placed. The pin flags marked the location of a proposed drain line that will be installed parallel to the levee on its landward side (see Figure 4, below). Thus, although most of the auger borings eventually were placed west of the levee centerline, they all occur within the project ROW and, as will be seen, provide excellent data on potential site locations.

Plan of the Report

Chapter 2 provides a review of the environmental setting of the project area, including discussions of landscape, soils, vegetation, and fauna. Chapter 3 discusses previous archaeological research in the general project area and adjacent regions considered pertinent to this study. Chapter 4 provides an overview of the cultural setting of this portion of south Louisiana, beginning with a prehistoric chronology based on regionally synthesized data, and concludes with a synopsis of the historic and modern periods. Chapter 5 describes the research design and method of investigation, as well as the results of field investigations. Chapter 6 offers a summary of the survey portion of the project and recommendations for future research.

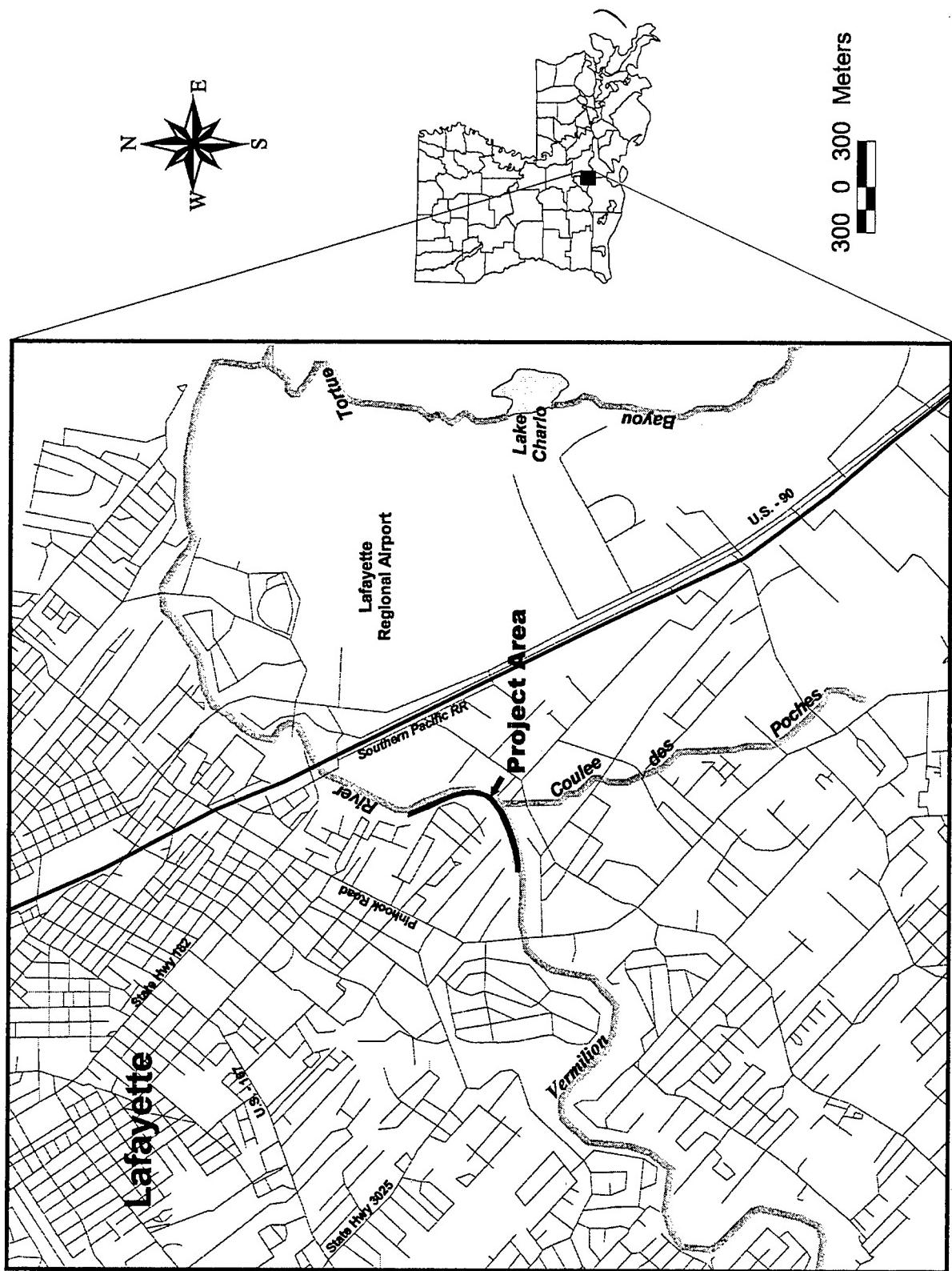
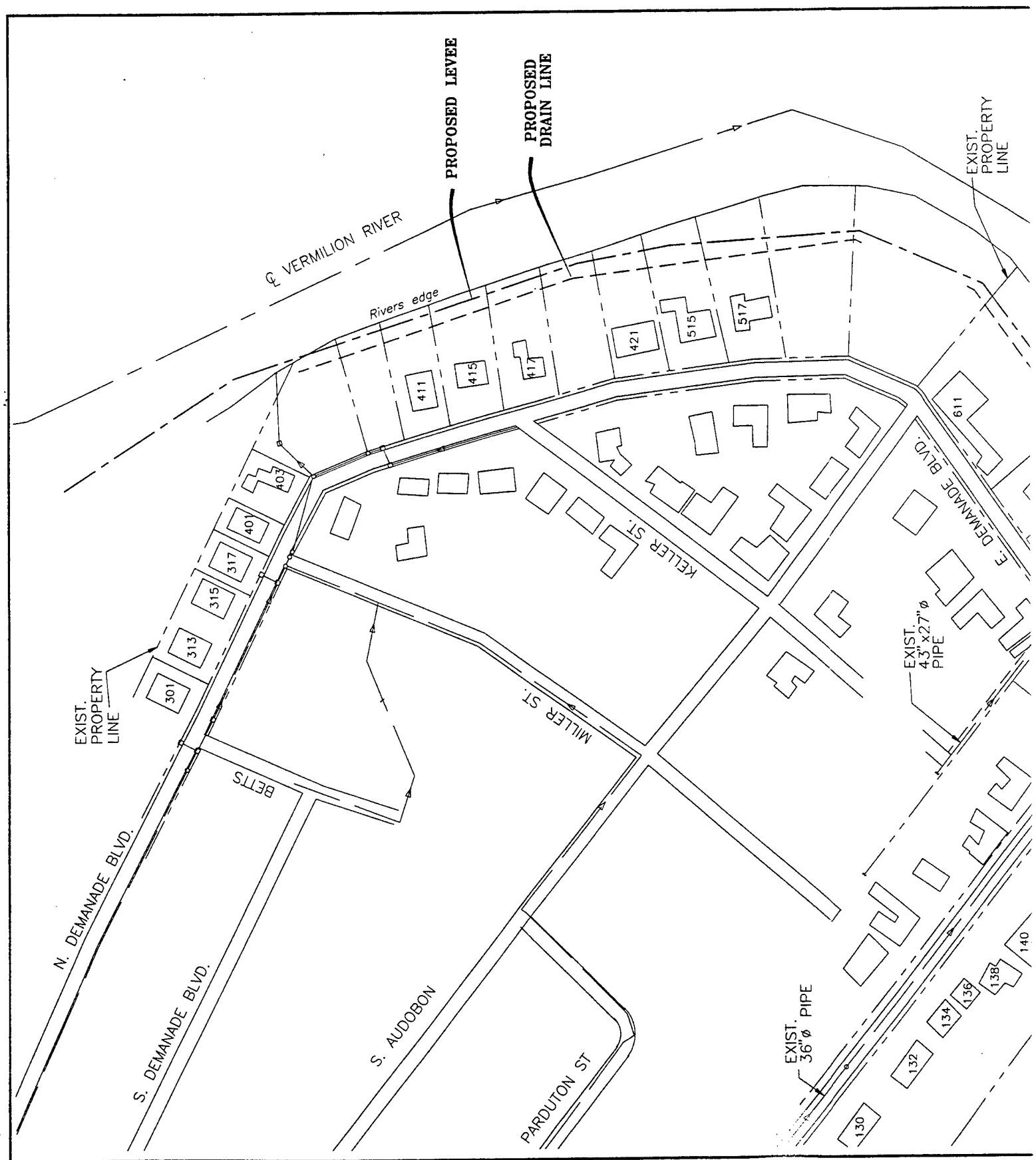


Figure 1. General location of project area.



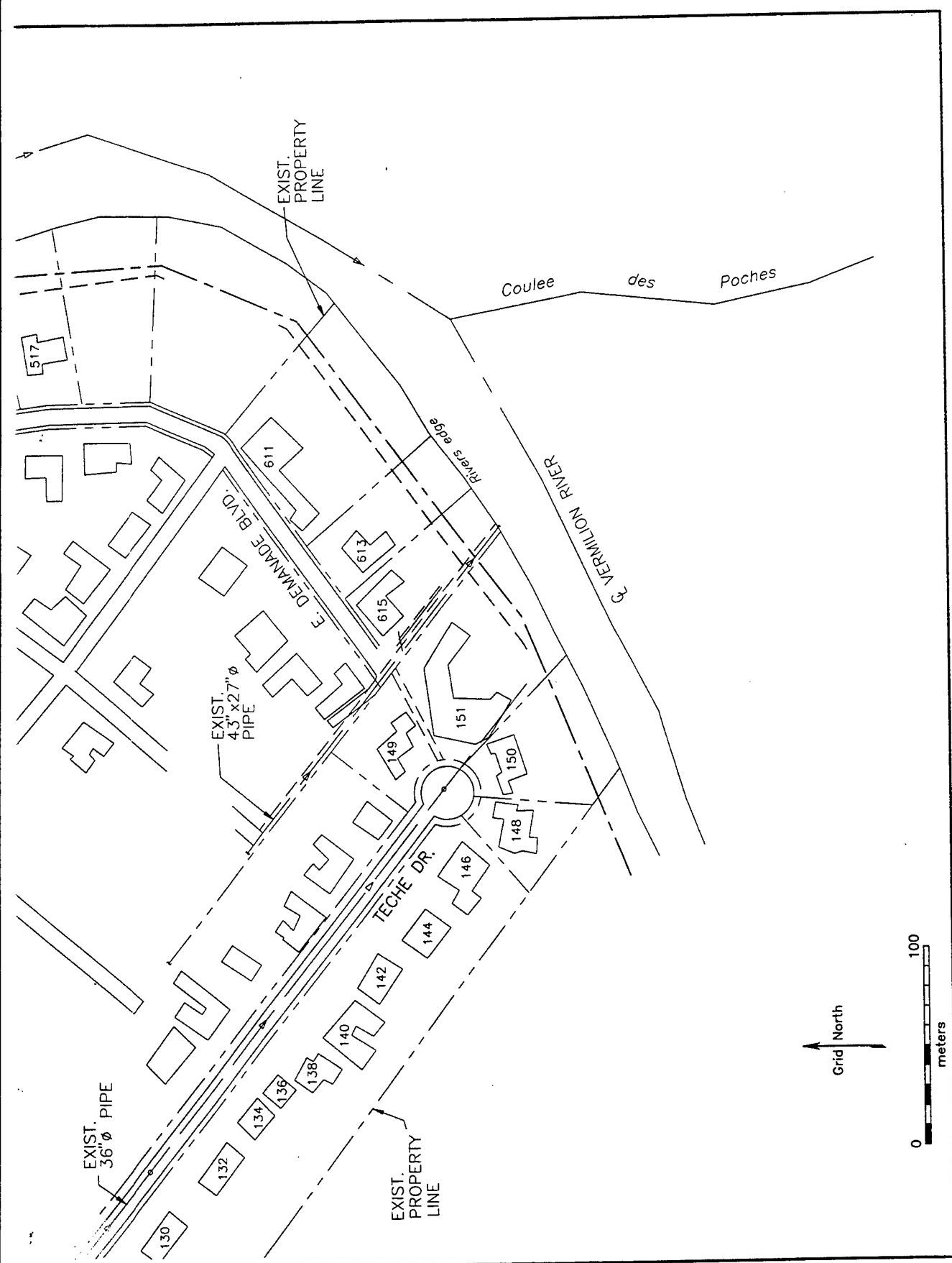


Figure 2. Specific location of project area.

CHAPTER 2

ENVIRONMENTAL SETTING

Geology and Geomorphology

The project area proper consists of Holocene point-bar deposits of the Vermilion River, since covered by dredged material and modified by house construction. Generally speaking, the main soils in the project area are udifluvents, predominantly loamy soils adjacent to bends of the Vermilion River from Lafayette to the southern boundary of the parish, pumped as dredge material from the Vermilion River channel. These soils are variable in nature ranging from a fine loamy sand to silty clay loam. Slopes are typically less than 1 percent, with surfaces highly uneven. Elevation ranges from 15 to 25 feet above sea level. Immediately north and south of the project area, soils are Memphis silt loams with slopes anywhere from 1 to 5 percent; moderately sloping (i.e., 5 to 8 percent) Memphis silt loams flank the project area. Brown-colored silt loams predominate in these peripheral areas (Murphy et al. 1977).

To the west, Prairie terrace surrounds the project area and is blanketed with anywhere from 1 to 9 meters of loess. Prairie surfaces, part of a complex of landforms representing diverse depositional sequences of Pleistocene-age rivers, generally show little dissection (Saucier and Snead 1991; Snead and McCullough 1984), but topographic features such as abandoned channels and natural levees are preserved beneath the loess deposits (Miller 1977). Saucier (1974) estimates that these soils were deposited between 80,000 and 100,000 years ago, whereas the loess was laid down about 20,000 B.P. Excepting patches of alluvium, recent soils all developed in uniform silty deposits, their differences attributable to variations in elevation and flora (Miller 1977).

Biota

Natural vegetation in the project area reflects the topography and drainage patterns of the region. Riparian habitat proper is highly variable as to width and floral composition; ornamental species from bordering yards, not present in aboriginal times, also vary widely and compose varying amounts of the study area. Trees found in either well- or poorly-drained areas of the nearby Prairie terrace include: various hawthorns (*Crataegus* spp.), post oak (*Quercus*

stellata), cherrybark oak (*Quercus pagoda*), water oak (*Quercus nigra*), and loblolly pine (*Pinus taeda*) (Brown 1945). Key tree and plant species found along the Vermilion include: black willow (*Salix nigra*), bald cypress (*Taxodium distichum*), tupelogum (*Nyssa aquatica*), green ash (*Fraxinus pennsylvanica* var. *lanceolata*), sweetgum (*Liquidambar styraciflua*), eastern cottonwood (*Populus deltoides*), persimmon (*Diospyros virginiana*), sugarberry (*Celtis laevigata*), swamp dogwood (*Cornus drummondii*), buttonbush (*Cephalanthus occidentalis*), blackberry/bramble (*Rubus* spp.), wild grape (*Vitis rotundifolia*), elderberry (*Sambucus canadensis*) and greenbriar (*Smilax* spp.).

The Vermilion River's riparian habitat supports a small number of mammals, such as swamp and cottontail rabbits (*Sylvilagus aquaticus* and *floridanus*), raccoon (*Procyon lotor*), fox and gray squirrels (*Sciurus niger* and *S. carolinensis*), and various rodents (mice and rats). A variety of birds may also be found, including: red-winged blackbird (*Agelaius phoeniceus*), northern cardinal (*Cardinalis cardinalis*), sparrow (Emberizidae), eastern screech-owl (*Otus asio*), mourning dove (*Zenaida macroura*), common grackle (*Quiscalus quiscula*), various songbirds, wood ducks (*Aix sponsa*), American woodcock (*Scolopax minor*), and common snipe (*Capella gallinago*). European starling (*Sturnus vulgaris*), nutria (*Myocastor coypus*), and fulvous whistling-ducks (*Dendrocygna bicolor*) represent relatively recent introductions to the local fauna. The aquatic populations of the Vermilion have largely recovered from an extremely polluted and impoverished state and gained a more normal community structure. Sport fishes now include sunfish (*Lepomis* spp.), largemouth bass (*Micropterus salmoides*), catfish (*Ictalurus* spp.), and white crappie (*Pomoxis annularis*) (Whelan and Castille 1988).

CHAPTER 3

CULTURAL SETTING

The following discussion is intended to familiarize the reader with the general sequence of cultural history within the study area. Figure 3 provides a chronology based on our current understanding of the prehistoric sequence of cultural development in south Louisiana.

The Aboriginal Past

Paleo-Indian Period, Prior to 6000 B.C.

Initial human occupation of Louisiana occurred in the Paleo-Indian period, a time which lasted from about 10,000 to 6000 B.C. Archaeological evidence from other parts of North America suggests that the populations involved were probably small bands of hunter-gatherers adapted to terminal Pleistocene or very early Holocene environments. Archaeological remains suggest that Paleo-Indian peoples utilized high terraces along water bodies, which have since been greatly modified by dissection and buried by recent alluvium (Autin 1985). The early portion of the period is characterized by the widespread fluted-point tradition generally dated prior to 8500 B.C. Gagliano (1963:112) notes that a few of these points, resembling the Clovis type, have been found in the Florida Parishes, and that they are generally made of exotic materials.

The Late Paleo-Indian period is marked by the divergence of the fluted-point tradition into distinct subtraditions. The Scottsbluff subtradition appears to have a predominantly western distribution, while the Dalton subtradition is represented throughout the Southeast and Midwest. Goodyear (1982) has argued that the Dalton horizon dates from approximately 8500 to 7900 B.C., and represents an adaptation to environmental changes at the end of the Pleistocene. One indication of this adaptation is the addition of the Dalton adz, a heavy woodworking tool, to an otherwise Early Paleo-Indian tool kit. A related complex found primarily in northern Louisiana, eastern Texas, and southern Arkansas includes the San Patrice point, an associated side-notched point, and the distinctive "Albany Scraper" (Webb et al. 1971). The Avery Island phase (Weinstein et al. 1977:3), corresponding roughly to the Early Paleo-Indian period out on the Plains, represents the earliest evidence of humans in south-

STAGE	PERIOD	CULTURE	TIME INTERVAL	PHASES		
				EASTERN AREA	CENTRAL AREA	WESTERN AREA
FORMATIVE	HISTORIC	VARIOUS CULTURES	A.D. 1800			
	MISSISSIPPI	MISSISSIPPION PLAQUEMINE	A.D. 1700		VARIOUS TRIBES	LITTLE PECAN
			A.D. 1600	DELTA NATCHEZAN	PETITE ANSE	
			A.D. 1500	MEDORA	BURK HILL	BAYOU CHENE
	COLES CREEK	TRANSITIONAL COLES CREEK	A.D. 1200	BARATARIA		
			A.D. 1000	ST. GABRIEL	THREE BAYOU	HOLLY BEACH
			A.D. 900 A.D. 850	BAYOU RAMOS	MORGAN	JEFF DAVIS
	BAYTOWN	TROYVILLE-LIKE	A.D. 700	BAYOU CUTLER	WHITE LAKE	WELSH
			A.D. 400	WHITEHALL	?	ROANOKE
			A.D. 200	GUNBOAT LANDING	VEAZEY	LAKE ARTHUR
ARCHAIC	MARKSVILLE	MARKSVILLE	A.D. I	MAGNOLIA & MANDALAY		
				SMITHFIELD	JEFFERSON ISLAND	LACASSINE
				LABRANCHE		
			250 B.C.	BEAU MIRE	LAFAYETTE	GRAND LAKE
				PONTCHARTRAIN		
LITHIC	POVERTY POINT	POVERTY POINT	500 B.C.	GARCIA	BEAU RIVAGE	?
	LATE ARCHAIC	ARCHAIC	1000 B.C.	BAYOU JASMINE	RABBIT ISLAND	
	MIDDLE ARCHAIC		1500 B.C.	PEARL RIVER	COPELL	BAYOU BLUE
	EARLY ARCHAIC		3000 B.C.	MONTE SANO	BANANA BAYOU	?
	LATE PALEO	PALEO-INDIAN	5000 B.C.	AMITE RIVER	ST. HELENA	?
	EARLY PALEO		6000 B.C.	JONES CREEK	VATICAN	STROHE
	PRE-PROJECTILE POINT	?	8000 B.C.	?	AVERY ISLAND	?
		?	10,000 B.C.	?	?	?

Figure 3. Aboriginal culture sequence for southern Louisiana (Roberts 1998b).

central Louisiana. Weinstein et al. (1977:3) have also proposed the Vatican phase, a rather strong Late Paleo-Indian manifestation that is based on many sites along the Lafayette-Mississippi meander belt and its distributaries. Diagnostic assemblages of points have been found at the majority of these sites.

Salt Mine Valley (16IB22) on Avery Island (Gagliano 1967) and Vatican (Gibson and Servello n.d.) are two major sites with Paleo-Indian components near the survey area. In addition, as noted earlier, remains of *Mammut americanum*, at the Trappey Mastodon site (16LY63), were found nearby. Although the Trappey Mastodon was not in clear association with human remains or artifacts, similar megafauna certainly lived contemporaneously with humans in Louisiana in this period, and doubtlessly were hunted, as evidenced in other parts of North America.

Early Archaic Period, 6000-5000 B.C.

In much of eastern North America, the Early Archaic period represents a time of adaptation to the changing environments associated with early post-glacial climatic regimes. The Paleo-Indian pattern of settlement apparently continued into the Early and Middle Archaic periods, yet sites were occupied for longer periods of time, in a cycle dictated by the seasonal availability of resources. Thus, the light lithic scatters of Paleo-Indian kill or camp sites, give way in the Archaic to relatively substantial midden deposits (Griffin 1967). While there is a distinct technological break with the earlier fluted-point tradition, there are obvious continuities with transitional complexes such as San Patrice. For instance, the San Patrice-inspired, side-notched-point style becomes characteristic of the Early Archaic. Corner-notched types such as the Palmer and Jude, and stemmed types like the Kirk are also characteristically Early Archaic.

Middle Archaic Period, 5000-3000 B.C.

The Middle Archaic period is characterized by widespread regional differentiation of cultures, and a number of developments in ground-stone technology. Ground atlatl weights, pendants, and grooved axes were the results of this technological change. Although they appeared first in the Early Archaic, grinding stones were more common in the Middle Archaic period. This period also roughly corresponds with the Hypsithermal Interval, which brought increased warmth and aridity to areas bordering the Great Plains (Wood and McMillan 1976). The impact of this climatic shift on other portions of the Southeast is not well known at present. The intensive shellfish collection evidenced at some riverine sites of this period may represent a

response to this climatic change (Lewis and Lewis 1961:20). In addition, Stoltman (1978:714-715) has suggested that plant collecting increased in importance during this time. Evidence is also mounting for Middle Archaic mound building (Russo 1994; Saunders 1994).

One Middle Archaic phase, Banana Bayou, has been tentatively identified in south-central Louisiana (Weinstein et al. 1977:4). The phase is named for the Banana Bayou mound (16IB24) at Avery Island and also encompasses other discoveries on terraces abutting the Bayou Teche floodplain. Importantly, a radiocarbon date of 4560 ± 260 B.P. (not 2490 B.C. [Gagliano 1967:18-19] see Gibson and Shenkel 1988:10) from the mound indicates a date later than what may be typically Middle Archaic.

Late Archaic Period, 3000-1500 B.C.

Research elsewhere in eastern North America suggests that the Late Archaic period was a time of marked population increases and the beginning of extensive trade networks. The evidence for the former is seen in the appearance of large habitation sites such as Indian Knoll, Kentucky (Webb 1946), while the latter is reflected in the exotic raw materials that occur at some sites.

The only Late Archaic phase identified in south-central Louisiana thus far is Copell which again comes from Weinstein et al. (1977). Copell (16VM102), initially thought to be a Tchefuncte site, is the type site for the phase (see Brown et al. 1979:92). This phase includes all sites of this time period from Pecan Island north to the vicinity of Lafayette, and from the western edge of the Mississippi floodplain to an area just west of White Lake. As Weinstein et al. (1977) suggest, particular traits, like the use of asphaltum, may link this phase to the Archaic cultures of the Texas coast.

Poverty Point Period, 1500-500 B.C.

In much of eastern North America this time interval witnessed a transition from Archaic hunting and gathering cultures to Woodland cultures characterized by food production, pottery manufacture, and mound building (Stoltman 1978:715-717). Current interpretations suggest that these three features have different and possibly unrelated origins.

There is evidence of native seed-plant cultivation in the Kentucky and Ohio area by 1000 B.C. (Struever and Vickery 1973). However, despite data from elsewhere in North

America indicating that a number of crops were cultivated prior to the Poverty Point period (Asch and Asch 1985; Fritz 1990; Yarnell 1993), and notwithstanding the persistent hypothesis of Poverty Point horticulture (see Ward 1998), we have no unequivocal evidence of horticulture at this time in the Lower Mississippi Valley (LMV), or at Poverty Point period sites. These data likely indicate, as Ward suggests, fairly intensive and selective utilization of locally available resources, but not horticulture *per se* (see Smith 1986:35 for a different view). Ceramics probably appeared somewhat earlier than this in the third millennium B.C. along the Atlantic Coast (Stoltman 1978:715), and mound building clearly had developed independently in several areas by 1000 B.C.

In the LMV, this transition is marked by the development of the distinctive Poverty Point culture. Among the material characteristics of this culture are baked clay balls called "Poverty Point objects," microlithic and lapidary industries, and massive earthworks (Webb 1977). The stone assemblage suggests participation in a widespread and well-organized trading network. Copper from the Great Lakes, quartz crystals, novaculite and magnetite from Missouri and Arkansas, gray chert from Ohio, and steatite from Alabama are a few of the distinctive trade items that appear on Poverty Point sites. Pottery is not abundant, but some fiber-tempered and nontempered wares have been found at several sites.

Two Poverty Point phases have been identified in south-central Louisiana. Information on the earlier Rabbit Island phase is so meager, no real attempts at assemblage description have been made (Weinstein et al. 1977). On the other hand, there is the possibly later Beau Rivage phase, potentially the most cogent Poverty Point period phase in south Louisiana (Gibson 1979). This phase is noted for abundant Poverty Point objects. Particularly representative sites include Beau Rivage (16LY5) in Lafayette Parish and Ruth Canal (16SM20) in St. Martin Parish.

Tchula Period, 500 B.C.-A.D. 1

The Tchula period in the LMV is characterized by the integration of food production, pottery manufacture, and mound building into a single cultural system. In the southern portion of the valley these developments occur in an archaeological culture called Tchefuncte. Originally defined in southern Louisiana (Ford and Quimby 1945), Tchefuncte culture is now recognized to have extended as far north as the vicinity of Clarksdale, Mississippi, and as far west as northeast and southeast Texas. Diagnostic artifacts for this culture, and most of the succeeding prehistoric cultures of the LMV, are distinctive ceramics. Tchefuncte pottery is

characterized by a laminated paste which appears to lack tempering. Replication studies suggest that the laminated texture is simply the result of minimal preparation of the raw material (Gertjejansen 1982), an expected feature of an incipient ceramic technology. Other diagnostic attributes of Tchefuncte ceramics include the use of podal supports and decorative techniques such as rocker-stamping, fingernail punctating, and jab-and-drag incising.

Little is known about Early Woodland period subsistence in the LMV. We have evidence of numerous seeds and rind fragments of pepo and bottle gourd (*Lagenaria siceraria*) from the Tchefuncte component of the Morton Shell Mound site (16IB3) in Iberia Parish, Louisiana (Byrd 1976, 1989). The pepo seeds are very small; although similar in size to ornamental gourd seeds, their cultigen status cannot be assumed (Fritz and Kidder 1993). Polygonum seeds were also found at Morton Shell Mound, but they were a species other than erect knotweed (*Polygonum erectum*), making discussions of the Eastern Agricultural Complex inappropriate. Persimmon seed and hickory nutshell were also included in the assemblage. Fritz and Kidder (1993:7) reason that ". . . it is probably unwise to classify prehistoric coastal societies as part-time gardeners on the basis of bottle gourd seeds" because of the taxon's ability to grow spontaneously. They accept Neuman's (1984:135) classification of the Tchefuncte sites of Louisiana as "widely scattered camps of seminomadic hunters and gatherers."

Mound construction, well documented for the preceding Late Archaic and Poverty Point periods, is surprisingly not clearly associated with Tchefuncte culture. Alan Toth (1988:27) has reviewed the evidence for Tchefuncte burial mounds and suggests that they are the result of diffusion of certain aspects of Marksville burial practices among a few late Tchefuncte groups. Further research is required to verify this hypothesis. Interestingly, the Lafayette Mounds (16SM17) seem to have been built with surrounding Tchefuncte midden material, but no grave goods were found with the at least 30 burials.

One Tchula period phase has been identified in south-central Louisiana. The Lafayette phase has been argued as "the most viable Tchefuncte grouping in south Louisiana" (Weinstein et al. 1977). It consists of numerous sites in and around Lafayette, as well as along the Vermilion River and Bayou Teche, and contains many ceramic types and varieties.

Marksville Period, A.D. 1-400

In many parts of eastern North America, the first centuries A.D. are marked by evidence of extensive interregional contact through a phenomenon labeled the Hopewell Interaction Sphere (Struever 1964). The focal points of this network were societies in the Ohio and Illinois River valleys which acquired large quantities of exotic raw materials, including obsidian, copper, mica, shark's teeth, and marine shells, in exchange for specialized finished goods such as copper panpipes and ear spools (Stoltman 1978:721). Various theories have been offered to explain the nature of this interaction, some emphasizing socioreligious systems and others pointing to economic networks.

Within the LMV, the culture which participated in the Hopewell Interaction Sphere is termed Marksville. Toth (1988:211-213) has argued that Marksville culture developed out of Tchefuncte as a result of intermittent contacts with cultures in the Illinois River Valley area, but he only speculates on the nature of these contacts. According to Toth, the evidence for Hopewellian interaction is largely limited to the Marksville mortuary system and aspects of ceramic decoration.

Evidence is still lacking for intensive use of native seed crops during this time frame (Roberts 1999) despite their prominence further north (Fritz 1993; Yarnell and Black 1985). Although corn fragments from Tennessee (Chapman and Crites 1987), Illinois (Parker 1989), and Ohio (Smart and Ford 1983) have been directly dated to the Middle Woodland, the LMV still lacks maize from this period.

An early Marksville period phase, Jefferson Island, has been identified in the vicinity of the project area. Sherds collected at the Gibson site (16TR5) on Bayou Black in Terrebonne Parish are representative (see Weinstein et. al 1977: Table 29) of Jefferson Island. In addition to the Gibson site, other Jefferson Island components have been found at sites associated with the Teche-Mississippi meander belt and the terracelands to the west. The Bayou Portage (16SM19) and Lake Peigneur (16IB100) sites are good components. Lake Peigneur, by its location on Jefferson Island, has in effect, given the phase its name.

Phillips (1970:899-900) originally established the Mandalay phase for south-central Louisiana, particularly for sites situated along the Teche-Mississippi. At that time it temporarily covered the entire Marksville period, but since then has been divided and presently represents

only the later half of the period (Weinstein et al. 1978:21). The phase is named for the Mandalay site (16TR1) on Bayou Black in Terrebonne Parish.

Baytown Period, A.D. 400-700

The period following the Hopewellian florescence was once characterized as a time of cultural decline throughout much of eastern North America (Griffin 1967:187). This is certainly implied in Phillips' (1970:901) statement that ceramic decoration was "at a remarkably low ebb" during this period in the LMV. Recently, however, a number of researchers have suggested that the apparent decline may not have been as pervasive as previously believed. In the Midwest, Braun (1977) and Styles and Vickery (1981) have argued that this period, in contrast to earlier interpretations, was a time of population growth and increased regional social integration. Along the Florida Gulf coast an elaborate culture called Weeden Island developed during this period (Milanich and Fairbanks 1980:89-143). Even in the LMV new data indicate that the Baytown period was marked by the appearance of two painted pottery complexes (Belmont and Williams 1981). The earlier complex, termed the Quafalorma horizon, developed during the Troyville subperiod and exhibited striking similarities to early Weeden Island ceramics. The later complex, called the Woodville horizon, characterized the Deasonville subperiod and was less elaborate.

Changes were also occurring in the stone-tool tradition during this period. Small arrow points began to replace dart points, reflecting a transition from the atlatl to the bow and arrow. Subsistence data from the LMV are limited for this period, but plant remains from a Baytown period component at the Reno Brake site (16TE93) indicate similarity with the preceding Marksville period. Acorn dominates these assemblages, while pecan appears somewhat infrequently. Use of fleshy fruits, mainly persimmon and palmetto, is considerable, but intensive cultivation of starchy or oily seeds appears lacking (Fritz and Kidder 1993). Mound building continued in the Baytown period, and there are indications that a shift from a mortuary function to a building substructure had clearly occurred by the end of this time (Rolingson 1982).

Coles Creek Period, A.D. 700-1200

Elsewhere in eastern North America this time interval corresponds to the latter portion of the Late Woodland period and the beginning of the Mississippi period. Within the LMV, a cultural florescence that shows a marked resemblance to the Weeden Island culture of

northwest Florida occurred during this period. The precise nature of the relationship of Coles Creek culture to Weeden Island is uncertain, but the similarities in ceramic decoration and community pattern are unmistakable. Ceramics from both cultures are characterized by incised, stamped, and punctated pottery types in which the decorative zone is largely restricted to a band around the rim of the vessel. Major settlements in both areas contain small platform mounds centered around open plazas. This kind of monumental construction is generally interpreted as a physical indication of a stratified social system.

These societies were once thought to have been established on economies which were based on the cultivation of maize; however, although maize is not uncommon among other groups during the eighth and ninth centuries A.D. in northwestern Mississippi and central Arkansas (Rolingson 1990; Scarry 1995; Smith 1993), recent studies reveal that there is no evidence of maize in the Tensas Basin until late Coles Creek times when it is, at most, a secondary plant food (Fritz 1994:5). Acorns, probably the products of highly managed, perhaps owned, territories, are the most important plant food. Thin and thick-shelled hickory nuts were also consumed in considerable quantities (Fritz 1997). Native fruits, particularly persimmons and to a lesser degree palmetto, were consistently important as well (Fritz 1994). Native North American seed crops were of considerable, but not paramount, importance throughout this period (Fritz and Kidder 1993:8-9; Kidder and Fritz 1993:291-294).

Two phases have been proposed for the Coles Creek period in west-central Louisiana, and are based on Lower Mississippi Survey investigations: Morgan and White Lake. Ceramics indicate that the White Lake and Morgan phases are equivalent to the middle and late Coles Creek periods, respectively. Radiocarbon dates from the Morgan site (16VM9) support this assessment (Brown 1984).

Mississippi Period, A.D. 1200-1700

The last prehistoric period in eastern North America witnessed the development of chiefdom-level societies that, almost without exception, were associated with maize cultivation. Perhaps the most dynamic of these societies appeared in the Middle Mississippi Valley between A.D. 900 and 1050. Referred to as Mississippian, this culture is characterized by a shell-tempered ceramic industry and a settlement pattern of large, often fortified, mound centers and nucleated habitation sites (Stoltman 1978:725). During the first centuries of the second millennium A.D., this culture spread rapidly along the major river valleys of eastern North America. The nature of this expansion, either through movement of people or diffusion of

ideas, is still debated. However, by A.D. 1200 Mississippian cultures could be found as far south as northern Mississippi and as far east as Georgia.

In the LMV, Mississippian culture encountered an indigenous non-Mississippian culture, and a hybridization of the two occurred. Phillips (1970) considered the resident culture to have been Plaquemine, an outgrowth of Coles Creek culture that began about A.D. 1000. He claimed that the interaction between Mississippian and Plaquemine culture resulted in gradual changes in the Plaquemine ceramic tradition and pattern of settlement. Later in the period, after A.D. 1400, an actual intrusion of Mississippian groups displaced the resident Plaquemine groups. Brain (1978), on the other hand, has offered a somewhat different interpretation of this sequence of events. The LMV culture which experienced the initial Mississippian contact at about A.D. 1200, according to Brain, was Coles Creek, and the resulting hybridization produced Plaquemine culture. The remainder of the period saw a gradual increase in Mississippian influence, at least in the Yazoo Basin, until about A.D. 1400, when a full Mississippian cultural pattern was achieved in the Lake George phase (Brain 1978:362). Brain's reinterpretation of the cultural sequence has resulted in a shift in the established chronologies. Phases such as Crippen Point, Gordon, and Preston, which were formerly considered Plaquemine culture manifestations of the early Mississippi period, are now placed late in the Coles Creek culture. The Coles Creek period is now thought to persist until A.D. 1200, and includes a number of changes in ceramic technology which had previously been considered indicators of Plaquemine culture.

While unable to agree on the origin of Plaquemine culture, all authorities concur that it exhibits numerous continuities with the preceding Coles Creek culture. Several of the Plaquemine ceramic types appear to have been direct outgrowths of Coles Creek types. Major ceramic changes, however, include the addition of small amounts of finely ground shell and other organic matter to the clay, and the extension of the decorative field to include the body of the vessel. Mound construction continued on an even greater scale than in previous periods, resulting in larger mounds, larger mound complexes, and a larger number of mound sites. Intensive maize agriculture is presumed to have been the economic base on which this florescence rested; importantly, evidence that corn production, alongside management of nut groves, supported these cultures, is mounting (Roberts 1998a).

Historic Aboriginal Period

The local version of Plaquemine culture endured longer in south-central Louisiana than it did in the rest of Louisiana. Early Acadian settlers and French colonials found native peoples still thriving as late as the middle of the eighteenth century (Swanton 1911:360). The Vermilion band of the Attakapas was the main indigenous group living in the study area, constituting the easternmost of three riverine branches of Attakapas. This group was known to supply expeditions against the British on the Mississippi with considerable manpower. The major Attakapas town was located somewhere between the Vermilion River and Bayou Teche. After having sold the main village in 1760, the Attakapas groups continued to live on a large tract of land nearby until the 1800s, after which they joined other Attakapas on the Mermentau River. The Chitimacha, residing slightly to the east of the study area, apparently lived along Bayou Portage, Lake Fausse Point, and Grand Lake during the 1700s (Swanton 1911). By the end of the nineteenth century, this group dwelt in a single village on Bayou Teche at Charenton, which now is home to a federal reservation (Gibson 1976b).

Historic European Period

Lafayette, originally named Vermilionville for the Bayou Vermilion, began as a plantation settlement around the time of the American Revolution. Other economic activity focused on cattle raising. Many early colonists were originally Nova Scotians living in New Orleans before moving to Attakapas territory; the Martin and Mouton families were among the first families to inhabit the area. The village soon became the only legitimate urban entity along the Vermilion and attracted large numbers of entrepreneurs, artisans, and professionals (Gibson 1976b). Vermilionville became the seat of Lafayette Parish in 1824. With the construction of the New Orleans, Opelousas and Great Western Railway in 1878, Vermilionville's population and proportions grew considerably.

The town's name was changed to Lafayette in 1884, when a suburb of New Orleans with the name "City of Lafayette" was incorporated into New Orleans, thereby freeing the name for use (Workers of the Writer's Program of the Work Projects Administration 1941). Interestingly, some sources say that the name of Pinhook Road, located near the project area, derives from the trick of a local restaurateur who used to steal his neighbors' chickens by tossing corn out for feed that had been fitted with a bent hook made of a pin. Once the chickens swallowed the corn he would reel the chickens in. Alternatively, and perhaps more likely, it has been proposed that the name comes from the Choctaw word for the linden tree—*Pinashuk* (Gibson 1976b:61).

CHAPTER 4

PREVIOUS RESEARCH

The work of C. B. Moore in April of 1913 is the first recorded archaeology in the general region of the present project area. Moore made a quick side trip up Bayou Teche during his investigation of the Atchafalaya basin and documented a few sites. Rather disappointed in his findings, he left in search of greater collections (Moore 1913). The next major archaeological undertaking near the project area was a WPA-sponsored excavation of the Lafayette Mounds (16SM17) in 1941 (Ford and Quimby 1945). Excavation of the largest mound yielded twelve bundle burials and eight flexed inhumations, all without grave goods. Most materials found were related to the Tchefuncte culture.

A period of academic interest, although sporadic, ensued. William McIntire's (1958) study, borne of his Ph.D. dissertation, reviewed known sites in coastal Louisiana and depicted several locales along Bayou Tortue and the Vermilion River. Next, Jon Gibson wrote a brief article on the Paleo-Indians of Louisiana, briefly mentioning the Vatican site (16SL171) (1970). Vatican, located on the Prairie terrace north of Lafayette, yielded large amounts of lithic material dating to the Late Paleo-Indian period. This article also makes mention of the nearby Trappey mastodon as an example of possible Paleo-Indian game. This find was described in more detail in 1973 by Gibson and Miller. Remains of an American mastodon (*Mammut americanum*) lay atop a soil horizon interpreted as the upper level of the Prairie terrace. Two dates of $11,960 \pm 450$ B.P. and $6,280 \pm 180$ B.P. were obtained, but only the earlier was considered reliable (Gibson and Miller 1973:6). It is important to note that artifacts were not found in association with the bones.

During the 1970s, contract archaeology, inspired by Federal requirements, produced several reports, mostly on surveys, within Lafayette Parish. Jon Gibson, largely because of his position at the University of Southwestern Louisiana in Lafayette, conducted much of this work. This consisted of small-scale surveys of the Scott, Louisiana, sewerage system (Gibson 1978a); the Youngsville, Louisiana, sewerage treatment facility (Gibson 1978b); and an extension of East Pine Street in Lafayette (Gibson 1974b). In 1972, Gibson found the deep, multi-component, but heavily scavenged Bayou Tortue (16LY1) site near Lafayette Municipal Airport (Gibson 1976b). Materials from Poverty Point, Tchefuncte, Marksville, Troyville, Coles Creek,

Plaquemine, and historic European occupations were found in the numerous test units dug at the site.

Yet another academic study was undertaken by Gibson (1974a). This work was a short treatise on Tchefuncte culture sites located in the Bayou Vermilion Basin, a backswamp area situated between the Prairie terrace surface on the west and the natural levees of the ancient Teche meander belt of the Mississippi River on the east. Eleven sites were discussed, including Beau Rivage (16LY5) and Bayou Tortue (16LY61), situated near the Lafayette Municipal Airport. The report helped establish the Lafayette phase of the Tchefuncte culture, until then, a nebulous entity that had been suggested only briefly by previous investigators (Ford and Quimby 1945; Gagliano 1967; Phillips 1970).

Probably the most widely read and perhaps most valuable work is Gibson's (1976a) report on an intensive bankline search conducted along portions of Bayou Teche, the Vermilion River, Bayou Fusilier, Freshwater Bayou, and Ruth Canal. The study identified numerous sites (three sites along Bayou Teche and 35 along the Vermilion) and was the first to discuss components in and near the present project area. Importantly, in his discussion of regional settlement patterns, he reflected, that "[t]he apparent low density of sites along the Vermilion from Lafayette south is a product . . . of the lack of intensive survey work and is not a reflection of a real lack of sites" (Gibson 1976a:85).

The same year, a study conducted by Gulf South Research Institute (GRSI) (1976) was produced, reporting on the Lafayette Loop area. Sixteen previously recorded sites and 36 new locations, many of which were historic sites occupied in the nineteenth and twentieth centuries, were discussed. This report constituted the first systematic reporting of historic sites.

As noted, several sites near and/or within the present project area were described in Gibson's 1976 work. To the northeast of the project corridor, Gibson located the Beaver Park Boat Launch site (16LY29) which consisted of several plain sherds of pottery found in a very disturbed area (Gibson 1976b:77). To the southwest, he found the Cottonwood site (16LY26) which yielded a single, plain, prehistoric sherd from the banks of the Vermilion River (Gibson 1976b:78). Lastly, within the present corridor, Gibson (1976b:77) reported on the Teche Street site (16LY55). This was a badly degraded locale damaged by the extension of Teche Street and subsequent residential development. Gibson's description (1976b:77) reads in part ". . . small site, of undetermined size, evidently exposed and destroyed by the lengthening of Teche Street,

potsherds of unidentified types were the only artifacts reported No interpretations can be made of [sic] the basis of present information."

Later shovel testing at this site revealed that it extended westward at least 100 m from the end of Teche Drive (Coastal Environments 1984). Bankline profiles were examined to determine its north-south extent and a ceramic collection was made from along the bluff edge below a spoil-retaining levee. Finding the true source of these sherds proved elusive, but it is important to note that some of them may have come from the levee that probably had been built before spoil deposits covered the area. Ceramics included two sherds of Tchefuncte Plain, *var. Tchefuncte*, one sherd similar to the soft, chalky ware usually attributable to the Baytown Plain, *var. Marksville*, and fourteen sherds of Baytown Plain, *var. unspecified*. The site was tentatively assigned to the Lafayette phase of the Tchula period (500 B.C.-A.D. 1) (see Weinstein et al. 1977) and the Jefferson Island phase of the Marksville period (A.D. 1-200 A.D.) (see Weinstein et al 1979).

Other surveyors in the Lafayette region during the 1970s included Rivet (1975a, 1975b), McIntire (1978), Neitzel (1979), and Neuman and Servello (1976). Rivet's initial (negative-finding) survey concerned the construction of the new Pinhook Road bridge over the Vermilion River (1975a). Later, he found three sites (16SL65, 16SL66, 16SL67) in the ROW of State Highway 3171, from its intersection with the I-10 junction of U.S. 190 eastward across the Lafayette-Mississippi meander belt (a segment of the Pleistocene-age Mississippi River that parallels the truncated edge of the Prairie terrace north of Lafayette, to the Coteau Ridge escarpment located at the edge of the terrace (Rivet 1975b). McIntire's contribution was a survey of a pipeline route south of Lafayette, while Neuman's was a letter report reviewing archaeological site potential along Bayou Teche. Finally, Neitzel's report dealt with a survey of the proposed plan to widen Kaliste Saloom Road just south of the present survey area.

Gibson again contributed much research in the following decades, including relatively small surveys and regional syntheses. In 1983 he produced a predictive model for the U.S.D.A. Soil Conservation Service and attempted to synthesize positive and negative data for the Vermilion (Gibson 1983). Prediction was based on site density estimators, derived from site location/soil associations and areal figures provided by other surveys. Not surprisingly, high site densities were positively correlated with natural levees, terraces, and elevated landforms.

His study of the mid-Teche ridge area (Gibson 1990a), which transverses northern Lafayette Parish (its southwestern boundaries are ca. 12 km northeast of the study area),

discussed 45 sites spanning 9,000 years of occupation from Early Archaic through modern times, with Tchefuncte and Plaquemine components predominating. In this work, he discusses fiber-tempered pottery in terms of possible timeframe (it appears to coexist and share design elements with Tchefuncte materials) and reviews the credibility of pre-Marksville mounds. Lastly, he explores Tchefuncte and Plaquemine settlement patterns, implications of exotic lithics and stone tool types, and the location of an eighteenth-century Attakapa village.

Gibson also conducted a number of surveys with negative results: (1) Northpark Industrial center in north Lafayette (1984), (2) a proposed adult community center where Calco Boulevard meets the Vermilion (1986a), (3) a floodwall locale along the Vermilion between Surrey and Simcoe streets (1986b), and (4) the locale of the National Wetlands Research Center between Congress Street and Eraste Landry Road in south Lafayette (1990b). As with many of the contract studies undertaken in the area, these works were important in terms of the negative data they provided.

Gibson (1991) later recorded 364 half-century or older standing structures in the Vermilion area. Prentice Thomas and Associates (1995) conducted a cultural resources survey of four disposal areas along the Vermilion river in Lafayette Parish, but found no significant prehistoric or prehistoric resources. Their report, however, provides excellent background on the history and prehistory of the area. They propose that the quantity of both positive and negative studies, regional syntheses, and theoretical discussion given to the Vermilion River and contiguous areas make it one of the "most intensively investigated localities in Louisiana" (Prentice Thomas and Associates 1995:18).

Meanwhile, other workers had also been making intermittent contributions. In March 1986, workers at CEI located one historic site (16LY59) and one prehistoric site (16LY60), represented by one sherd of Baytown Plain, *var. unspecified*, along road alignments between South College Road and Ambassador Cafferey Parkway (Whelan and Castille 1988). Site 16LY59 seems to represent a former tenant house occupied from the late nineteenth through the early twentieth centuries. CEI also located two historic sites near the current project area (Coastal Environments, Inc. 1984). Penzoil Yard (16LY56) consisted of a scatter of one or more historic home sites dating to the late 1800s and/or early 1900s. Although many artifacts were recovered, shovel testing failed to locate intact midden. This site was not considered eligible for the National Register, whereas the second site, La Rue France (16LY58), on the opposite side of the river, was considered potentially eligible. An artifact scatter and intact midden encompassing an area 200 m by 60 m along the top of the bluff was found to be almost certainly related to a homestead of a Mr. Michael Meaux established by at least 1810.

CHAPTER 5

FIELDWORK

General Methods

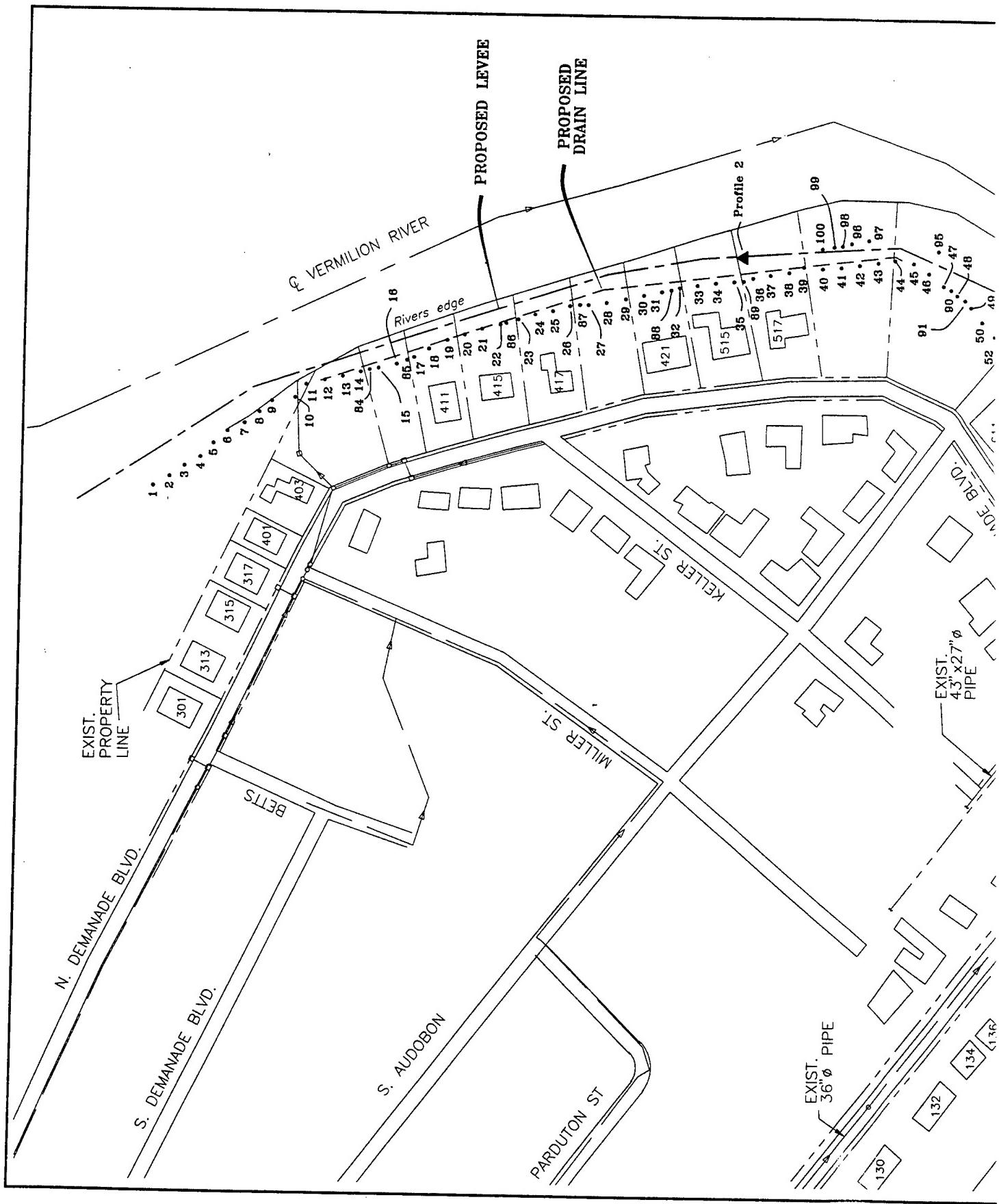
Fieldwork for this project was conducted between June 8 and June 25, 1999. Except for a few days at the beginning and end of the project, when the principal investigator joined the crew, work was conducted by a three-person survey party. Because the Vermilion bankline is covered with natural flood and spoil deposits, augering was deemed the most suitable method to locate archaeological sites. Systematic auger testing, using a manual bucket auger with a cylinder 22 cm long and 7 cm wide, was conducted along the approximated midline of the ROW for the proposed flood wall (Figure 4). Borings were initially excavated at 10-m intervals to a depth of 2 m or until oxidized natural-levee deposits were reached. Additional auger tests were placed along this line equidistant from positive locales in order to determine the extent of artifact occurrence. Bankline profiles were cleared in two areas where artifacts were retrieved in the augers. Soil from the auger borings and profiles was screened through 1/4-inch wire mesh.

The locations for all auger borings and the two bankline profiles were tied to existing features in the project area (houses, fencelines, etc.) through the use of a transit. Towards this end, an initial datum point was selected atop a low retaining levee present at the edge of the Vermilion bankline at the southern end of the project area. The elevation for the datum was estimated to be +6.8 m. This height was figured by converting the elevation of the adjacent ground surface (15 ft), as illustrated on the 1983 Lafayette, Louisiana, USGS 7.5-min topographic map, to 6.1 m and then adding 0.7 m to account for the height of the retaining levee. This eventually allowed the borings and profiles to be accurately plotted on the project map provided by the New Orleans District (see Figure 4). It also allowed for the vertical comparison of each boring and its associated stratigraphy across the entire project area.

Results

Auger Borings

A total of 95 auger borings was excavated in the project area, with some sections along the transect necessarily being skipped (see Figure 4). For instance, one property owner (151



1072

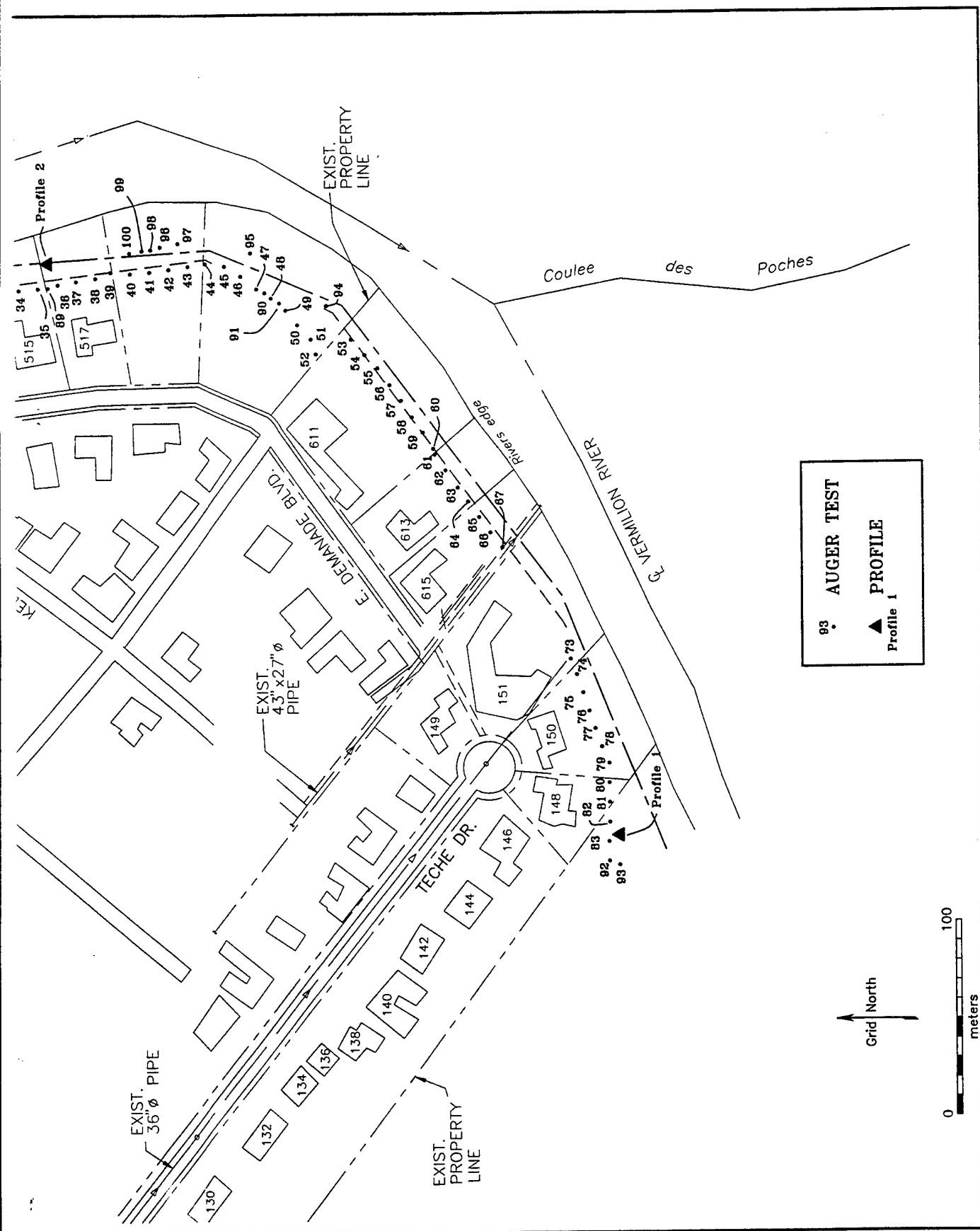


Figure 4. Location of auger borings and bankline profiles within the project area.

Teche Drive) denied us access to her land, while portions of the lower bankline were passed over because they were submerged in water. Although many of the sampled areas indicated recently disturbed ground, apparently intact, representative, stratigraphy was revealed by several borings (Figure 5). These sequences are summarized below.

An area (Auger #s 17, 18, 19, 20, 21) of fairly uniform deposits occurred toward the north end of the project area. These deposits began at the surface with a layer of dark grayish brown (10YR 4/2) clay about 10 cm thick, followed by an average of about 25 cm of dark yellowish brown to brown (10YR 5/4 to 7.5YR 5/4) fine sandy silt. Next, 30 cm of dark yellowish red (5YR 4/6) silt was encountered. These soils were followed by a reddish brown (5YR 5/4) fine sandy silt measuring between 65 and 70 cm in thickness. A minimum of 70 cm of gray (5YR 5/1) clay underlaid all of this.

Another series of auger tests (i.e., Auger #s 34 through 38) revealed what may be *in situ* midden deposits. A general profile for these borings began with approximately 25 cm of very dark grayish brown (10YR 3/2) silty clay underlaid by 40 to 50 cm of dark yellowish brown (10YR 5/4) fine sandy silt. Next, approximately 10 to 15 cm of dark gray to dark grayish brown (10YR 4/1-10YR 4/2) fine sandy clayey silt, constituting what may be the midden/old A horizon, was encountered. The light yellowish brown (10YR 6/4) silt occurred again below this, ranging in thickness from 18 to 75 cm. A yellowish to yellowish red brown (10YR 5/6 to 5YR 5/6) silt, a minimum of 40 cm deep, lay underneath this.

Auger tests 39 through 44 also revealed stratigraphy similar to one another. About 6 cm of dark grayish brown (10YR 3/2) silty clay overlay, in all cases, 100 to ca. 110 cm of dark gray to gray (10YR 4/1 to 5/1) clay. In some instances, approximately 20 cm of a dark grayish brown (10YR 4/2) fine sandy silt subtended this gray clay. Yellowish brown to strong brown (5YR 5/6 to 7.5YR 5/6) silt, in which the clay content increased with depth, comprised the lowest stratum which was at least 75 cm in depth.

Borings 45 through 52, excepting 48, were also comparable in terms of strata present. Ninety-five to 100 cm of very dark grayish brown (10YR 3/2) silty clay, followed by about 50 cm of dark brown (10YR 4/3) fine sandy silt, was encountered. Again, a strong brown to yellowish red (7.5YR 5/6 to 5YR 4/6) silt was found underneath. The gray clay from these tests and the series immediately before it seemed to represent a paludal or similar depositional environment.

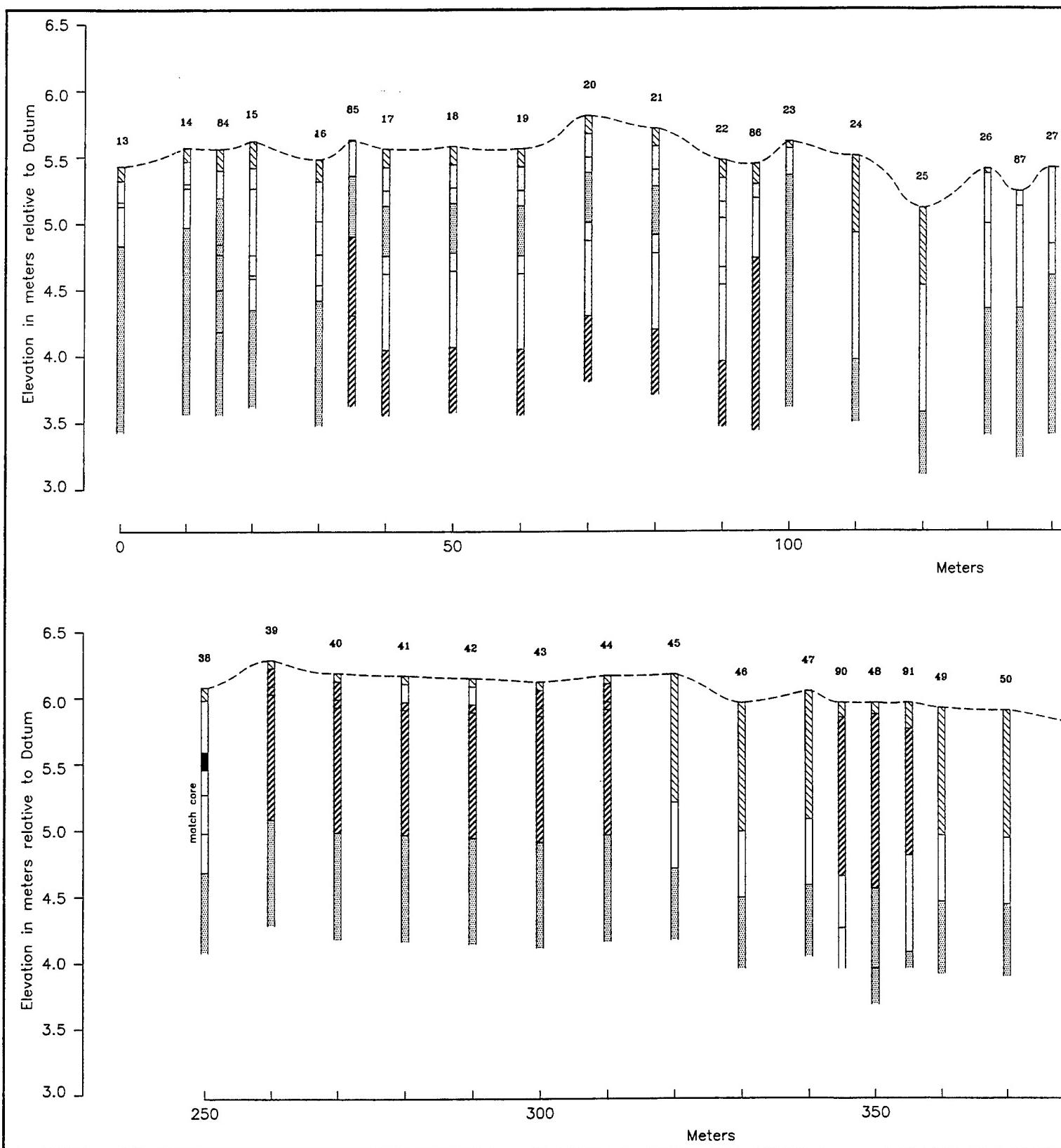
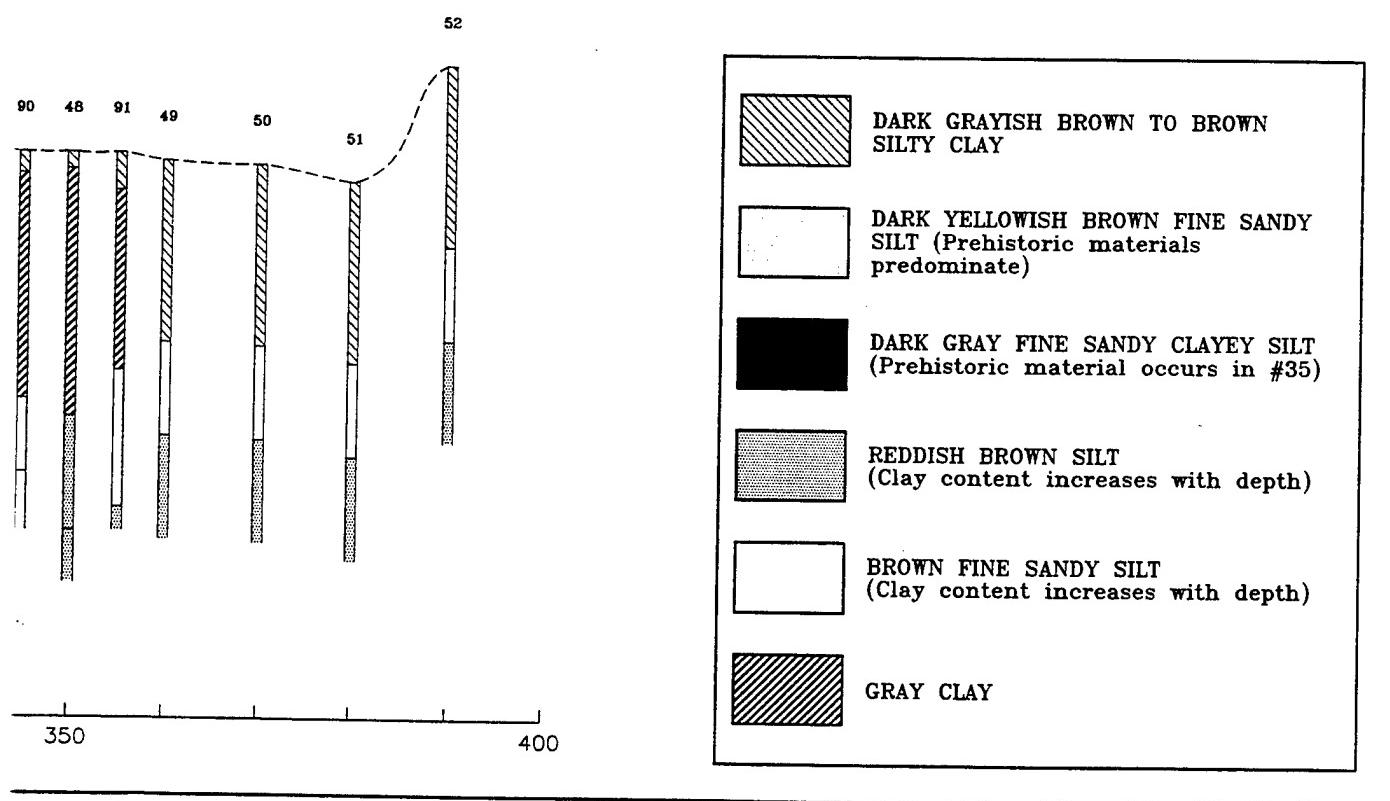
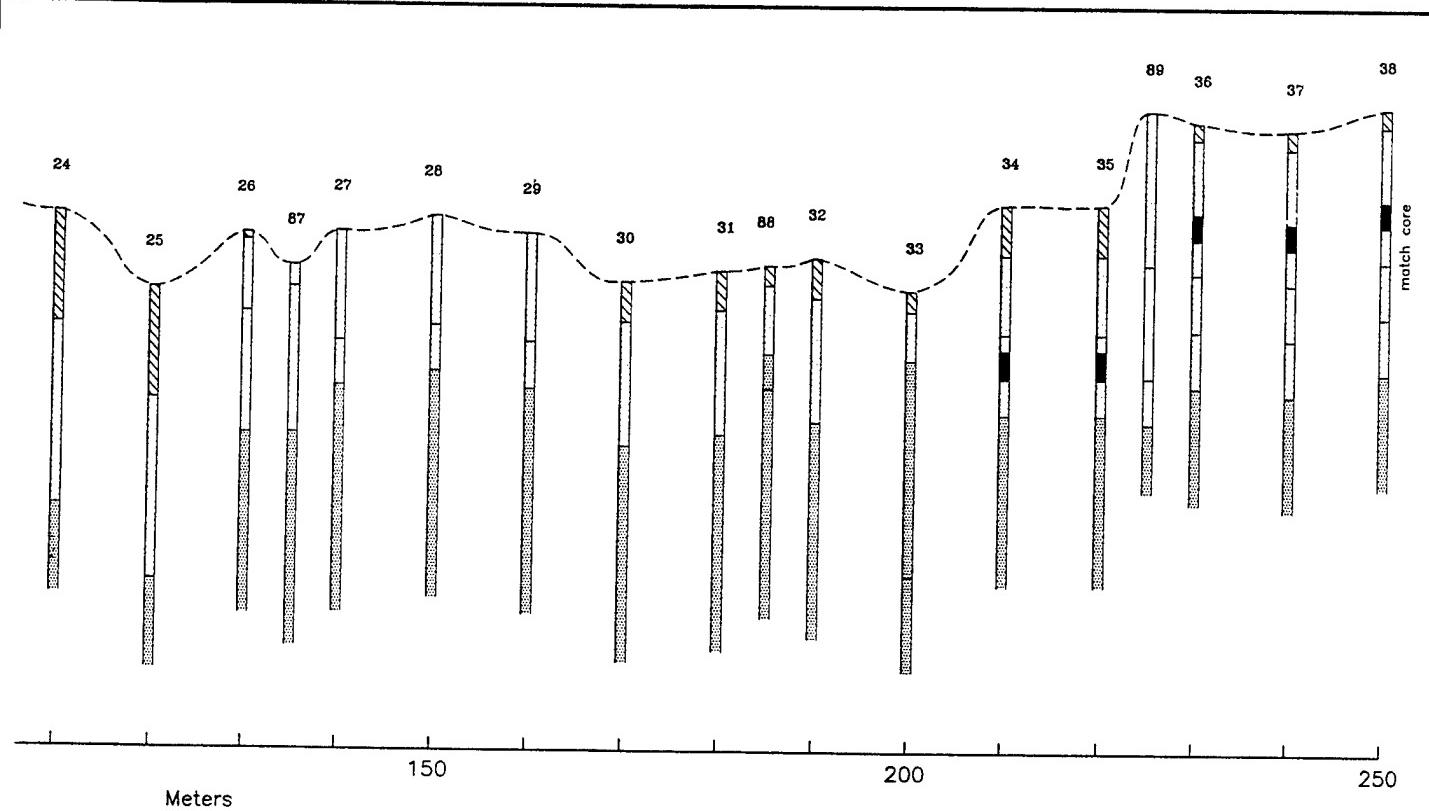


Figure 5. Representative auger borings from project area.



Bankline Profiles

Stratigraphy of the first bankline profile revealed what appeared to be intact strata (Figure 6), the uppermost of which is a dark yellowish brown (10YR 4/4) fine sandy silt that had a maximum thickness of 25 cm. Underlying this was a layer of yellowish brown (10YR 5/4) very fine sandy silt ranging in thickness between 3 and 12 cm. Next, a brown (10YR 4/3) sandy silt, anywhere from 4 to 12 cm thick, occurred, followed by a relatively thick lens of strong brown (7.5YR 4/6) fine sandy silt. This stratum began at a depth of 35 cm below ground surface and continued anywhere from 14 to 27 cm. Very fine sandy silt, light brown (7.5YR 6/4) in color was found next, interbedded with a brown (7.5YR 5/4) fine sandy silt. Lastly, we encountered a strong brown (7.5YR 4/6) slightly clayey, fine sandy silt. Artifacts found in profile walls and backdirt are discussed below.

The second bankline profile (Figure 7), located close to the river's edge (see Figure 4), seemed to demonstrate intact, readily interpretable stratigraphy and compares favorably to soils recovered in Auger Tests 34 through 38. This profile began with a dark grayish brown (10YR 4/2) silty clay, representing recent humus mixed with the modern A horizon. This stratum was, on average, about 30 cm thick. A pale brown (10YR 6/3) fine sandy silt, mottled with (5YR 5/6) fine sandy silty clay, occurred next, and probably represents dredged material. Very dark grayish brown (10YR 3/2) fine sandy, slightly silty clay occurred next. This stratum measures anywhere from 5 to 13 centimeters thick and constitutes the old A horizon. Underlying this stratum was a thick (ca. 50 cm) zone of light yellowish brown (10YR 6/4) fine sandy silt. A yellowish brown (10YR 5/6) very fine sandy, slightly clayey silt occurred at the very bottom of the profile. These last two deposits (Strata IV and V) represent a point-bar deposit and an oxidized point-bar deposit, respectively. It seems likely that strata IV and V in this profile correspond to strata V, VI, and VII in Profile #1. No artifacts were recovered or seen in the profile walls from Profile #2.

Artifacts and Interpretation

Recent historic (i.e., less than 50 years old) and other undated natural materials (i.e., shell) occurred in 20 borings throughout the study area (Table 1). Prehistoric artifacts were recovered from a total of 14 borings (Table 2, Figure 8), 10 of which represent, in the most conservative view, a new site, while two can be tied to a previously established site. The stretch of finds between Auger Borings #15 and #91 constitutes the new Demanade Boulevard site (16LY99) (see Figure 8). Included are 13 sherds of Baytown Plain, *var. unspecified*, two

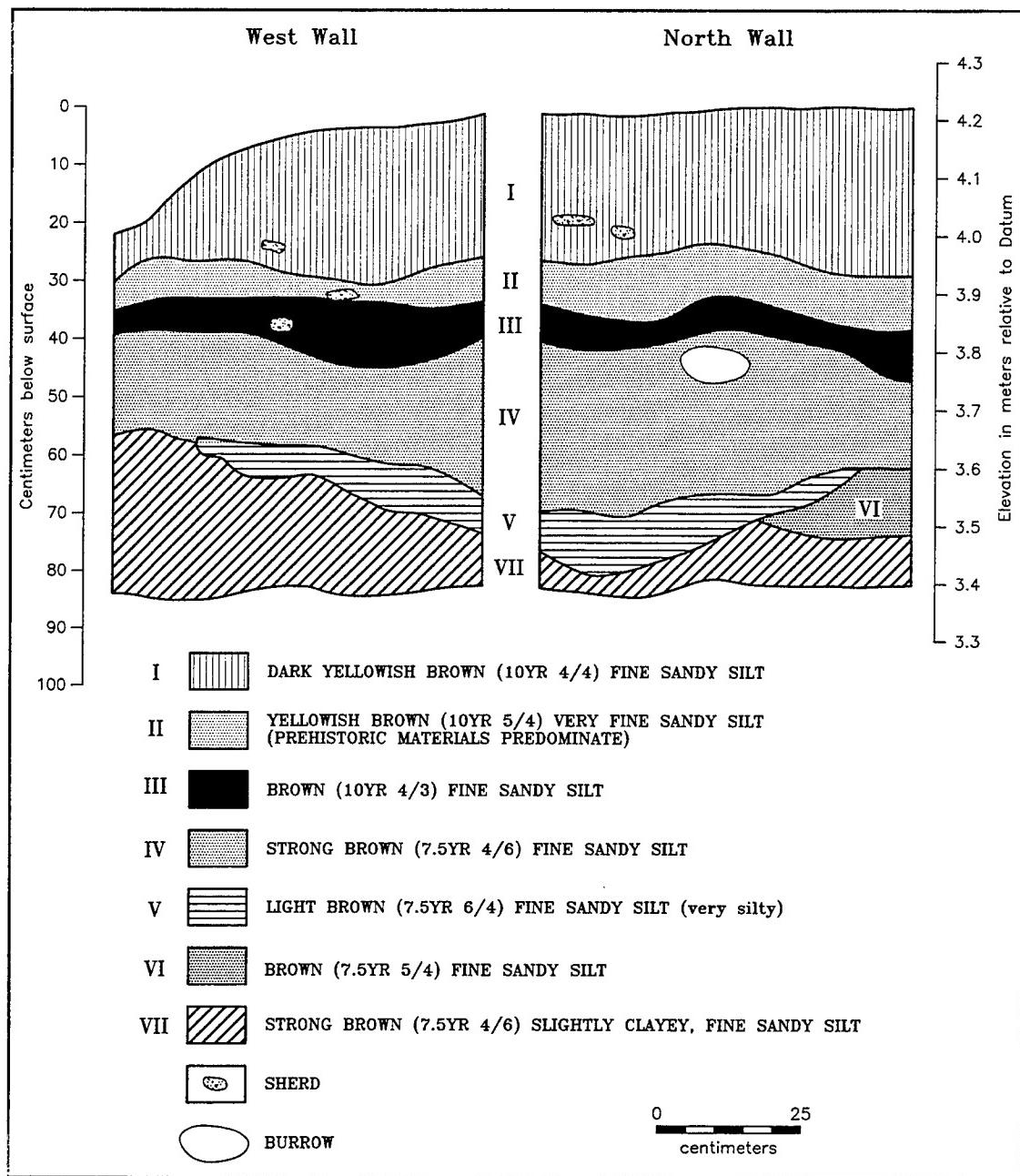


Figure 6. Bankline Profile Number 1.

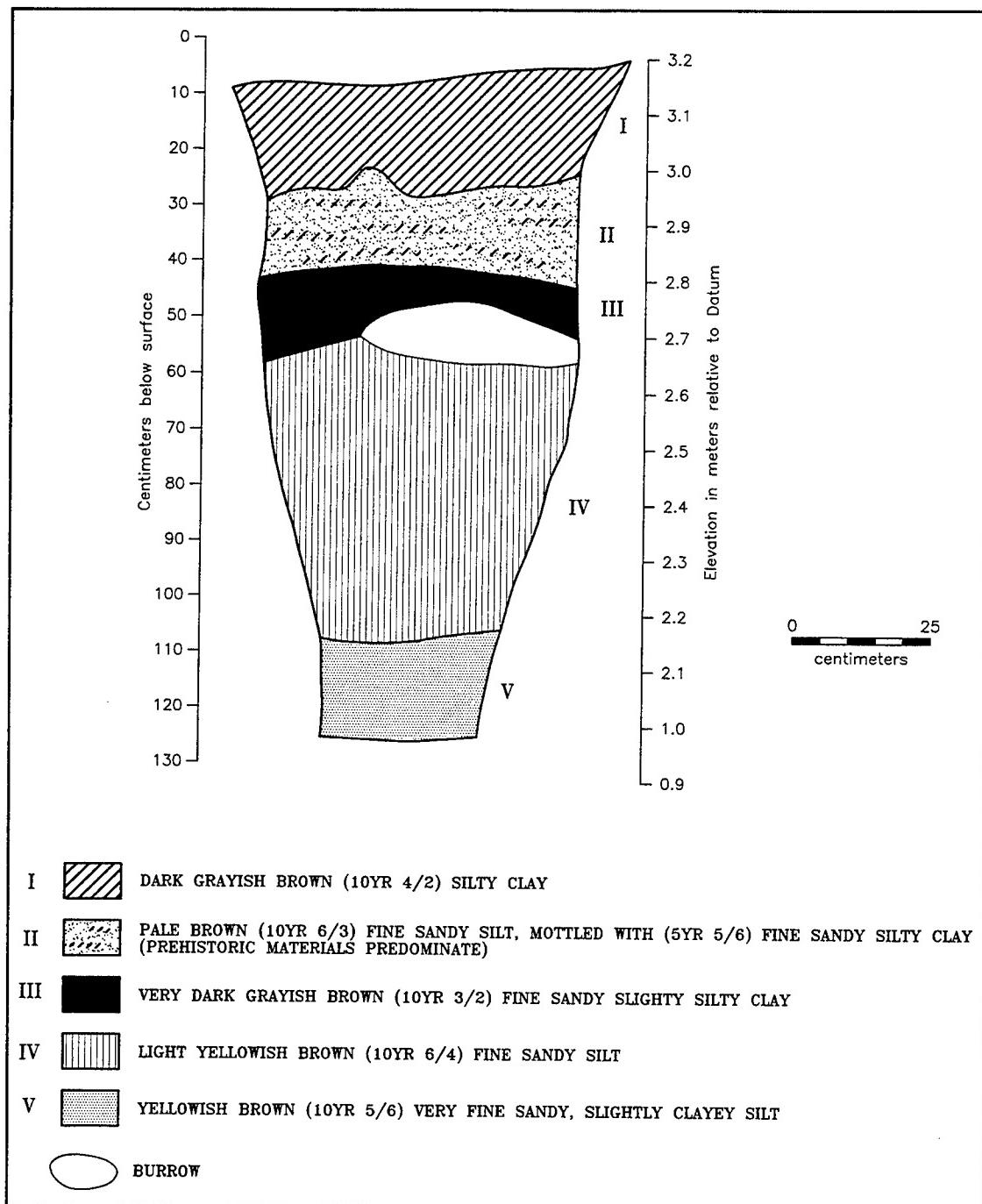


Figure 7. Bankline Profile Number 2.

Table 1. Recent Historic Artifacts and Other Materials from the Project Area.

	Auger #6 20-40 cm count	Auger #6 Surface weight (g)	Auger #14 Surface count	Auger #14 0-20 cm weight (g)	Auger #15 20-35 cm count	Auger #15 10-14 cm weight (g)	Auger #16 14+ cm count	Auger #16 20-40cm count	Auger #26 2-40 cm count	
CERAMIC										
terra cotta fragments										
GLASS										
clean glass										
METAL										
wire nail										
ferrous metal										
metalslag										
FAUNAL MATERIAL										
<i>Apteronotus gymnurus</i> ; bone										
unidentified fish bone										
<i>Rangia</i> sp.; shell										
oyster shell										
CONSTRUCTION MATERIAL										
asbestos tile										
brick fragments										
cement										
tile										
MISCELLANEOUS										
charcoal fragments										
coal										
civil slag										
stone/aggregate										
Total	3	13.2	62	27.1	130	118.1	33	18.9	3	4.8
										5
										6.2
										1
										2.5

(continued)

Table 1. Continued.

	Auger #27				Auger #28				Auger #48				Auger #61				Auger #65				Auger #66				Auger #77				Auger #80			
	30 cm count		80 cm count		20 cm weight (g)		60 cm count		150 cm count		weight (g)		ca. 130 cm count		weight (g)		ca. 6 cm count		weight (g)		ca. 70 cm count		weight (g)		0-27 cm count		weight (g)		0-24 cm count		weight (g)	
CERAMIC																																
terra cotta fragments																																
GLASS																																
clear glass																																
METAL																																
wire nail																																
ferrous metal																																
metal slag																																
FAUNAL MATERIAL																																
<i>Pholidonotus garnieri</i> bone																																
unidentified fish bone																																
<i>Ranigan</i> sp. shell																																
oyster shell																																
CONSTRUCTION MATERIAL																																
asbestos tile																																
brick fragments																																
concrete																																
tile																																
Miscellaneous																																
charcoal fragment																																
coal																																
coal slag																																
stone/cobble																																
Total	1	6.8	1	0.3	2	0.4	2	0.2	1	13.7	1	8.6	1	3.7	1	0.6	5	26.49	1	7.4	24	47.5										

(continued)

Table 1. Concluded.

		Auger #84				Auger #88				Auger #89				Auger #94				Auger #99				Totals			
		0-16 cm count weight (g)		16-32 cm count weight (g)		37-72 cm count weight (g)		109+ cm count weight (g)		0-10 cm count weight (g)		10-46 cm count weight (g)		0-81 cm count weight (g)		ca. 140 cm count weight (g)		27-86 cm count weight (g)		Auger #99 count weight (g)		Count		Weight (g)	
CRAMIC	terracotta fragments																					1	0.5		
GLASS	clear glass																					1	1.4		
METAL	white nail																					2	12.9		
	ferrous metal																					1	0.1		
	metal shag																					1	3.7		
FAUNAL MATERIAL	<i>Aphydolites granulosus</i> bone																					1	12.9		
	unidentified fish bone																					1	0.1		
	<i>Ranidea</i> sp. shell																					1	3.7		
	oyster shell																					1	0.1		
CONSTRUCTION MATERIAL	asbestos tile																					1	3.7		
	brick fragments																					1	12.9		
	concrete																					1	8.6		
	tile																					1	8.6		
MISCELLANEOUS	charcoal fragment																					10	8.5		
	clay																					5	1.4		
	ceramic																					2	12.9		
	stony/cobble																					2	8.6		
	stone																					30	62.6		
Total		82	40.6	16	16.1	10	12.3	8	4.8	7	4.3	1	0.4	3	1.1	1	0.2	4	1.4	413	393.21				

Table 2. Prehistoric Artifacts from the Project Area.

	Auger #15 103-141 cm count	Auger #16 20-40 cm count	Auger #23 5-25 cm count	Auger #26 2-40 cm count	Auger #27 5 cm count	Auger #27		Auger #32 ca. 40 cm count	
						weight (g)	weight (g)	weight (g)	count
ABORIGINAL CERAMICS									
Baytown Plain, var. unspecified	1	5.4	1	0.8	1	1.2	6	5.3	
Baytown Plain, cf. var. Marksille							1	2.7	1
LITHICS									
Scallop-like point									
bifacial preform									
fire-cracked cobble									
heat treated cobble									
tested cobble									
MISCELLANEOUS									
fired clay									
Total	1	5.4	1	0.8	1	1.2	6	5.3	1
							2.7	1	3.1
									2
									3.9

(continued)

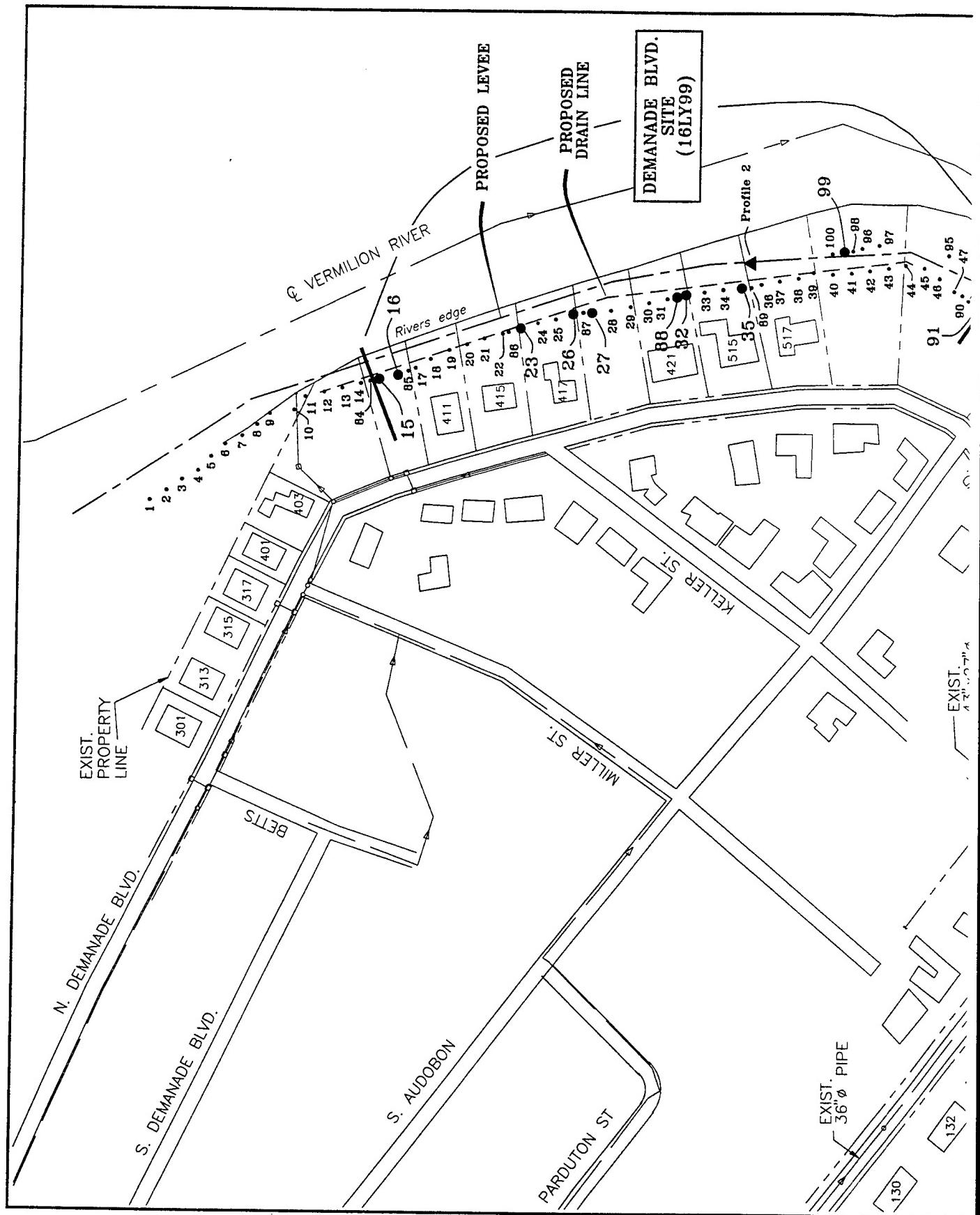
Table 2. Continued.

	Auger #35 ca. 87 cm count	Auger # 60 ca. 20 cm count	Auger #64 ca. 50 cm count	Auger #75 84-139 cm count		Auger #83 16-31cm count	
				weight (g)	weight (g)	weight (g)	count
ABORIGINAL CERAMICS							
Baytown Plain, var. <i>unspecified</i> Baytown Plain, cf. var. <i>Marksville</i>	1	5.3	1	0.7			
LITHICS							
Scallop-like point bifacial preform fire-cracked cobble heat treated cobble tested cobble				1	3.3	1 2.7 22.8	
MISCELLANEOUS							
fired clay	1	0.9		1	3.3	2 1 0.1	4 0.9
Total	2	6.2	1	0.7	1	25.5	1
						0.1	5
							1.8

(continued)

Table 2. Concluded.

	Auger #88				Auger #91				Auger #99				Totals	
	10-46 cm count		ca. 65 cm count		ca. 145cm count		ca. 170 cm count		27-86 cm count		Weight (g)		Count	Weight (g)
ABORIGINAL CERAMICS														
Baytown Plain, var. <i>unspecified</i>	1	0.8	2	2.7	1	0.9			1	1	2.8	17	28.6	
Baytown Plain, cf. var. <i>Marksville</i>											5.8	2	6.7	
LITHICS														
Scallorn-like point														
bifacial preform														
fine-cracked cobble														
heat treated cobble														
tested cobble														
MISCELLANEOUS														
fired clay														
Total	1	0.8	2	2.7	1	0.9	1	0.8	2	8.6	32	76.5		



1072

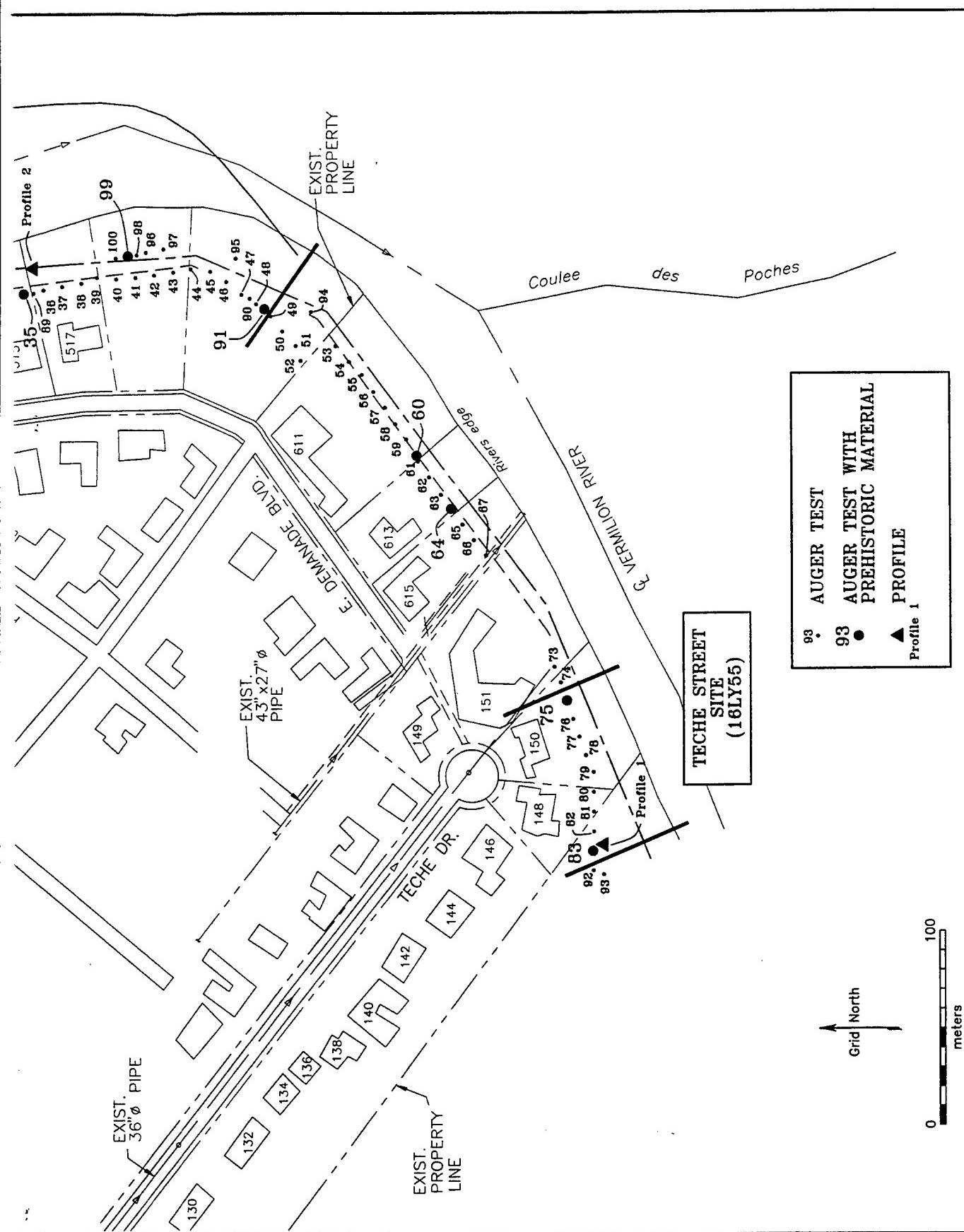


Figure 8. Occurrence of prehistoric artifacts and site boundaries within the project area.

sherds of what may be Baytown Plain, cf.¹ *var. Marksville*, a Scallorn-like arrow point (Figure 9a) and an early-stage bifacial preform (see Figure 9b). Both lithic items are made out of heat-treated Citronelle chert. The majority of these items were recovered from, or adjacent to, a second stratum of dark yellowish brown to yellowish brown (mostly 10YR 4/4 to 5/4) fine sandy silt.

Given the artifacts recovered, at least two potential occupations can be recognized. The earliest, dating somewhere between A.D. 1 and A.D. 200, can be tied to the early Marksville period, based on the probable sherds of Baytown Plain, *var. Marksville*. The later occupation most likely dates to some time within the Coles Creek period (ca. A.D. 700 to 1200), based on the Scallorn arrow point. The *unspecified* sherds of Baytown Plain probably also are associated with this later occupation.

At the south end of the ROW, a piece of fired clay and a sherd of Baytown Plain, *var. unspecified* were recovered from Boring 83, while two cobbles, one heat-treated and one tested (see Figure 9c), came from Boring 75. These almost certainly represent remains from the previously recorded Teche Street site (16LY55) (see Figure 8). It is important to note that artifacts from 16LY99 may actually be an extension of 16LY55, given the fact that we could not dig Borings #68 through #72 because we did not get access from the property owner. It is possible that more artifacts occur along this line in between these two sites. Additionally, although Borings #60 (spot find #1) and #64 (spot find #2) yielded a piece of Baytown Plain, *var. unspecified* and a heat-treated cobble, respectively, it is not clear whether they should be included as part of either currently designated site. The stratigraphy of this area is unclear and highly disturbed, and cultural levels may be obliterated. Further, much of the site(s) areas are likely to be located along the bluff edge that currently falls under standing houses.

Because the bank location where Profile #1 was to be placed had been undercut a good deal by the river, sizable quantities of soil had to be removed to get an even profile. As a result, backdirt was fairly substantial and consequently yielded considerable artifactual material. Six sherds were found *in situ* in Profile #1. Three sherds Baytown Plain (one cf. *var. Marksville*, two *var. unspecified*) were found in Stratum I, while Stratum II yielded two pieces of Baytown Plain, *var. unspecified*. Lastly, one piece of Baytown Plain, *var. unspecified* occurred in Stratum III.

¹ cf. stands for *confer*, which in Latin means “to compare.” This abbreviation is used in designations for which the item in question is similiar to the name which follows it, but not indisputably so.

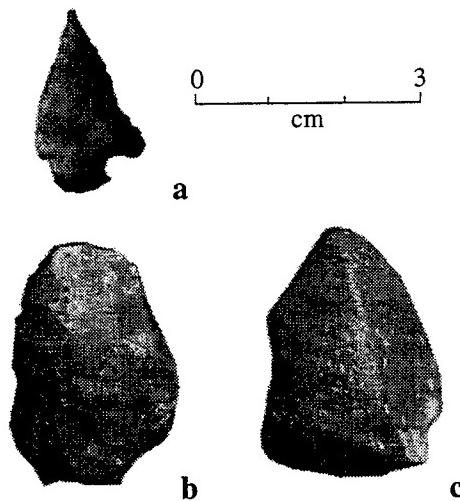


Figure 9. Lithics from the project area:
 (a) Scallorn-like point; (b)
 early-stage bifacial preform;
 (c) tested cobble.

From the backdirt, lithic remains, all of mustard-colored (10YR 5/8) Citronelle gravel, included: two small cores, one fractured cobble, one primary flake made out of thermally altered chert, one interior flake, and one fire spall. Among the ceramics were 82 Baytown Plain sherds, including four rims, four bases, four sherds apparently tempered with some bone, and seven sherds containing considerable amounts of hematite. All of these were classified as Baytown Plain, *var. unspecified*. Also recovered were three sherds of Pontchartrain Check Stamped, *var. Pontchartrain* (Figure 10a); four Marksville Incised sherds, including *vars. Steele Bayou* (see Figure 10b), *Yokena* (see Figure 10c), *unspecified* (see Figure 10d), and *Vick* (see Figure 10e); and a sherd of Mazique Incised, *var. unspecified* (see Figure 10f). Pontchartrain Check Stamped, *var. Pontchartrain* indicates a Coles Creek (A.D. 700-1200) occupation (see Brown 1982), whereas the Marksville Incised varieties indicate late Marksville through early Baytown (A.D. 200-500) occupations.

The sherd of Mazique Incised is particularly interesting, as it represents a part of the neck of a slightly flaring jar. The incised lines appear to overhang slightly, in classic Mazique fashion, but they are aligned almost vertically on the jar neck. Although *unspecified* to variety, the sherd appears to represent an early to middle Coles Creek period occupation (ca. A.D. 700 to 1000). This may be the same occupation responsible for the *Pontchartrain* sherds at the same site, and the Scallorn arrow point at the Demanade Boulevard site.

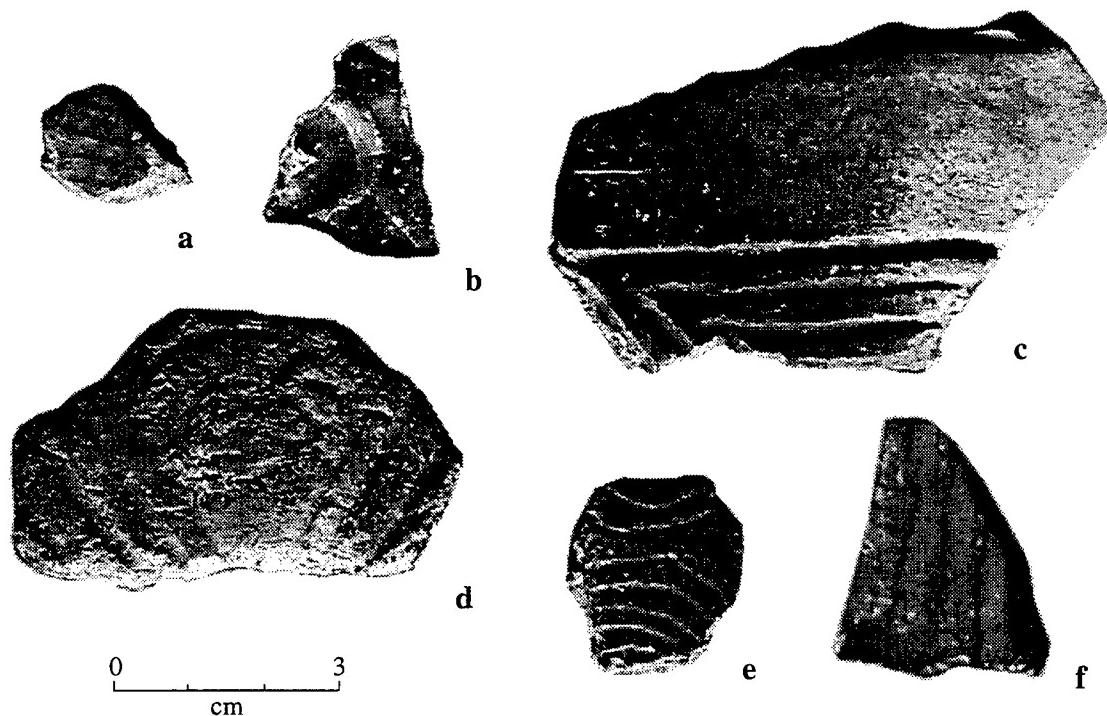


Figure 10. Ceramics from the project area: (a) Pontchartrain Check Stamped, var. *Pontchartrain*; (b) Marksville Incised, var. *Steele Bayou*; (c) Marksville Incised, var. *Yokena*; (d) Marksville Incised, var. *unspecified*; (e) Marksville Incised, var. *Vick*; (f) Mazique Incised, var. *unspecified*.

CHAPTER 6

RECOMMENDATIONS

Within the ROW, prehistoric artifacts were concentrated in two locales: (1) between Auger Borings #15 and #91 at the new Demanade Boulevard site (16LY99) and (2) in Auger Borings #83 and #75 at the Teche Street site (16LY55). If the floodwall is to be built, these two areas need to be assessed for National Register eligibility. A regime of additional augering and test excavations is advocated in order to determine the exact extent and nature of each site and to provide additional information on the age(s) of occupation and possible function(s) associated with each locale.

Specifically, it is recommended that augering be conducted at regular intervals along the axis perpendicular to the boring-line in the current study. These borings should be excavated in the same manner as discussed in this report. It is expected that they will determine the lateral limits of each site. Test excavation is also advocated and it is suggested that 8 tests units be place within the existing ROW.

Units should be placed in areas where there are intact, possibly *in situ* cultural deposits along what is essentially the east-west axis of the Teche Street site and along the location of intact cultural deposits the north-south axis of the Demanade Boulevard site. It is not clear, with only auger excavation, whether the cultural level at the Teche Street site reflects an actual site locale, or is the product of colluvial wash from possible sites on the nearby terrace. At the Demanade Boulevard site (16LY99), almost all of the prehistoric cultural material was located in a stratum consisting of dark, yellowish brown, fine sandy clay (see Figure 5). This stratum varied in thickness, ranging from ca. 25 cm to ca. 135 cm and may or may not encompass another, darker-colored stratum (see boring series #17 through #21 and #34 through #38). In some instances, this prehistoric cultural stratum is the uppermost stratum; in others it is preceded by another stratum of dark, grayish brown to brown silty clay, after which it occurs as deep as 53 cm below the current ground surface and continues to a depth of 200 cm. Auger borings from the Teche Street site indicate complex, and perhaps somewhat disturbed, stratigraphy in which prehistoric material occurs at widely varying depths. Bankline profile #1 (see Figure 6), located at the site, suggests that at least some of this prehistoric cultural deposit is intact. Type of soil, stratigraphic position, and the presence of prehistoric, cultural materials

all indicate that Stratum II, ranging from about 3 cm to 13 cm in thickness, is indeed prehistoric, cultural in nature, and intact. Results from excavation of test units in areas at these sites should resolve issues about the nature and extent of these deposits.

The test units should be located near the following positive auger borings: (1.) #15 and #16, (2.) #26 and #27, (3.) #88 and #32, (4.) #35, (5.) #99, (6.) #91, (7.) #75, and (8.) #83. This will provide systematic sampling at fairly regular intervals along the length of the ROW at each site. Units should be hand excavated and, hopefully, will provide the detailed cultural and stratigraphic information that will be needed for assessment of each site regarding National Register eligibility.

REFERENCES

- Asch, D. L. and N. B. Asch
1985 Prehistoric Plant Cultivation in West-Central Illinois. In *Prehistoric Food Production in North America*, edited by R. I. Ford, pp. 149-203. University of Michigan, Ann Arbor.
- Autin, W. J.
1985 Alluvial Morphology and Stratigraphy of a Meandering Segment of the Amite River, Southeastern Louisiana. *Southeastern Geology* 26(2):95-110.
- Belmont, J. S., and S. Williams
1981 Painted Pottery Horizons in the Southern Mississippi Valley. In *Traces of Prehistory: Papers in Honor of William G. Haag*, edited by F. H. West and R. W. Neuman, pp. 19-42. Geoscience and Man No. 22. School of Geoscience, Louisiana State University, Baton Rouge.
- Brain, J. P.
1978 Late Prehistoric Settlement Patterning in the Yazoo Basin and Natchez Bluffs Regions of the Lower Mississippi Valley. In *Mississippian Settlement Patterns*, edited by B. D. Smith, pp. 331-368. Academic Press, New York.
- Braun, D. P.
1977 *Middle-Woodland—(Early) Late Woodland Social Change in the Prehistoric Central Midwestern U.S.* Unpublished Ph.D. dissertation, University of Michigan, Ann Arbor.
- Brown, C. A.
1945 *Louisiana Trees and Shrubs*. Bulletin No. 1. Louisiana Forestry Commission, Baton Rouge.
- Brown, I. W.
1982 *The Southeastern Check Stamped Pottery Tradition: A View From Louisiana*. Special Paper No. 4. Midcontinental Journal of Archaeology, Kent State University Press, Kent, Ohio.
-
- 1984 Late Prehistory in Coastal Louisiana: The Coles Creek Period. In *Perspectives on Gulf Coast Prehistory*, edited by D. D. Davis, pp. 94-124. Florida State Museum, Gainesville, Florida.
- Brown, I. W., R. S. Fuller, and N. Lambert-Brown
1979 *Lower Mississippi Survey Petite Anse Project*. Research Notes Number 11. Peabody Museum, Harvard University, Cambridge.

- Byrd, K. M.
- 1976 Tchefuncte Subsistence: Information Obtained from the Excavation of Morton Shell Mound. *Southeastern Archaeological Conference Bulletin* 9:70-75.
-
- 1989 Tchefuncte Subsistence Practices at the Morton Shell Mound, Iberia Parish, Louisiana. *Louisiana Archaeology* 16:1-128.
- Chapman, J., and G. D. Crites
- 1987 Evidence for Early Maize (*Zea mays*) from the Icehouse Bottom Site, Tennessee. *American Antiquity* 52(2):352-354.
- Coastal Environments, Inc.
- 1984 Appendix B. In *Environmental Assessment for Federal Aid Project No. M 8193(002), State Project No. 742-02-30, South College Road Extension, Pinhook Road, Kaliste Saloom Road, Lafayette Parish*, pp. B-1 to B-32. Coastal Environments, Inc. Submitted to Federal Highway Administration, United States Department of Transportation and Office of Highways, Louisiana Department of Transportation and Development, Baton Rouge.
- Ford, J. A., and G. I. Quimby
- 1945 *The Tchefuncte Culture, An Early Occupation of the Lower Mississippi Valley*. Memoir No. 2. Society for American Archaeology, Menasha, Wisconsin.
- Fritz, G. J.
- 1990 Multiple Pathways to Farming in Precontact Eastern North America. *Journal of World Prehistory* 4(4):387-435.
-
- 1993 Early and Middle Woodland Period Paleoethnobotany. In *Foraging and Farming in the Eastern Woodlands*, edited by C. M. Scarry, pp. 39-56. University Press of Florida, Gainesville.
-
- 1994 Coles Creek and Plaquemine Landscapes. Paper prepared for the 51st Southeastern Archaeological Conference, Lexington, Kentucky.
-
- 1997 *Archaeological Plant Remains from the Birds Creek Site (16CT416), Catahoula, Parish*. Ms. submitted to Earth Search, Inc. New Orleans, Louisiana.
- Fritz, G. J., and T. R. Kidder
- 1993 Recent Investigations into Prehistoric Agriculture in the Lower Mississippi Valley. *Southeastern Archaeology* 12(1):1-14.
- Gagliano, S. M.
- 1963 A Survey of Preceramic Occupations in Portions of South Louisiana and South Mississippi. *Florida Anthropologist* 16(4):105-132.
-
- 1967 *Occupational Sequence at Avery Island*. Coastal Studies Series No. 22. Louisiana State University, Baton Rouge.
- Gertjeljansen, D. J.
- 1982 Laboratory Simulation of Tchefuncte Period Ceramic Vessels from the Pontchartrain Basin. Paper presented at the 8th annual meeting of the Louisiana Archaeological Society, Thibodaux, Louisiana.

Gibson, J. L.

1970 The Paleo-Indian Era in Louisiana. *Louisiana Heritage* 2(3):18-19.

1974a The Tchefuncte Culture in the Bayou Vermilion Basin, South Central Louisiana: A Developmental Case Study. *Bulletin of the Texas Archeological Society* 45:67-95.

1974b Untitled letter regarding the impact of West Conference Street on archaeological resources. Submitted to the Office of the Mayor, Lafayette, Louisiana.

1976a *Archaeological Survey of Bayou Teche, Vermilion River, and Freshwater Bayou, South-central Louisiana*. Report No. 2. Center for Archaeological Studies, University of Southwestern Louisiana, Lafayette.

1976b Archaeological Survey of the Lafayette Municipal Airport, Lafayette, Louisiana. Department of Sociology and Anthropology, University of Southwestern Louisiana. Lafayette. Submitted to Lafayette Municipal Airport. Copies available from Office of the State Archaeologist, Louisiana Division of Archeology and Historic Preservation, Baton Rouge.

1978a *Cultural Resources Survey of the Proposed Sewerage System Improvements for the Town of Scott, Lafayette Parish, Louisiana*. Jon L. Gibson Submitted to Domingue, Szabo and Associates, Inc., and the Town of Scott. Copies available from Office of the State Archaeologist, Louisiana Division of Archeology and Historic Preservation, Baton Rouge.

1978b *Cultural Resources Survey of Sewerage Force Mains, Pump Stations, and Treatment Facility, Village of Youngsville, Lafayette Parish, Louisiana*. Jon L. Gibson. Submitted to Domingue, Szabo and Associates, Inc., and the Village of Youngsville, Louisiana. Copies available from Office of the State Archaeologist, Louisiana Division of Archeology and Historic Preservation, Baton Rouge.

1979 Poverty Point Trade in South Central Louisiana: An Illustration from Beau Rivage. *Louisiana Archaeology* 4:91-116.

1983 *Statistical Probabilities for Archaeological Sites in the Upper Vermilion Bayou Watershed, South Central Louisiana*. Archaeology Inc. Submitted to United States Soil Conservation Service, Alexandria, Louisiana. Copies available from Office of the State Archaeologist, Louisiana Division of Archeology and Historic Preservation, Baton Rouge.

1984 *Cultural Resources Survey of High Technology Industrial Center, Lafayette, Louisiana*. Archaeology Inc. Submitted to Lafayette Harbor, Terminal, and Industrial Development District, Lafayette, Louisiana.

1986a *Cultural Resources Investigation of Proposed Riverplace Adult Community Center on Vermilion River, Lafayette, Louisiana*. Jon L. Gibson. Submitted to Puller Mortgage Association Inc., Indianapolis.

1986b *Cultural Resources Survey of the River Oaks Flood Protection Project, Phase II, Lafayette, Louisiana*. Jon L. Gibson. Submitted to Domingue, Szabo and Associates Inc., Lafayette.

- Gibson, J. L.
- 1990a *Archaeological Survey of the Mid-Tech Ridge, South Louisiana: From Bayou Gerimond to Bayou Portage Guidry*. Center for Archaeological Studies, Report No. 2. University of Southwestern Louisiana, Lafayette.
- 1990b *Cultural Resources Survey of the National Wetlands Research Center Tract, Lafayette, Louisiana*. Jon L. Gibson. Submitted to Perkins, Guidry, Beazley, and Ostteen Inc., Lafayette, Louisiana.
- 1991 *I-49 Connector Phase I, Line and Grade Study and Draft Environmental Statement: Cultural Resources Investigations*. Jon L. Gibson. Submitted to Howard, Needles, Tammen, and Bergendoff. Copies available from Louisiana Department of Transportation and Development, Baton Rouge.
- Gibson, J. L. and L. Miller
- 1973 *The Trappey Mastodon, Lafayette Parish, Louisiana*. Anthropology Research Series No. 27. University of Southwestern Louisiana, Lafayette.
- Gibson, J. L., and A. F. Servello
- n.d. *Vatican: A Late Paleo-Indian Site in St. Landry Parish, Louisiana*. Department of Anthropology and Sociology, University of Southern Louisiana. Submitted to Department of Anthropology, University of Southwestern Louisiana, Lafayette.
- Gibson, J. L., and J. R. Shenkel
- 1988 Louisiana Earthworks: Middle Woodland and Predecessors. In *Middle Woodland Settlement and Ceremonialism in the Mid-South and Lower Mississippi Valley: Proceedings of the 1984 Mid-South Archaeological Conference, Pinson Mounds, Tennessee-June, 1984*, edited by R. C. Mainfort, Jr., pp. 7-18. Archaeological Report No. 22. Mississippi Department of Archives and History, Jackson.
- Goodyear, A. C.
- 1982 The Chronological Position of the Dalton Horizon in the Southeastern United States. *American Antiquity* 47(2):382-395.
- Gulf South Research Institute (GSRI)
- 1976 History and Archaeology. In *Supplement to Environmental Effect Assessment of the Lafayette Loop*, by Gulf South Research Institute, Chapter 5. Gulf South Research Institute. Submitted to Office of Highways, Louisiana Department of Transportation and Development, Baton Rouge.
- Griffin, J. B.
- 1967 Eastern North American Archaeology: A Summary. *Science* 156(3772):175-191.
- Lewis, T. M. N., and M. K. Lewis
- 1961 *Eva: An Archaic Site*. A University of Tennessee Study in Anthropology, University of Tennessee Press, Knoxville.
- Kidder, T. R., and G. J. Fritz
- 1993 Subsistence and Social Change in the Lower Mississippi Valley: The Reno Brake and Osceola Sites, Louisiana. *Journal of Field Archaeology* 20(4):281-297.
- McIntire, W. G.
- 1958 *Prehistoric Indian Settlements of the Changing Mississippi River Delta*. Coastal Studies Series No. 1. Louisiana State University, Baton Rouge.

- McIntire, W. G.
- 1978 *The Texas-Louisiana Ethylene (TLP) Project: Archeology*. Submitted to Office of the State Archaeologist, Louisiana Division of Archeology and Historic Preservation, Baton Rouge.
- Milanich, J. T., and C. H. Fairbanks
- 1980 *Florida Archaeology*. Academic Press, New York.
- Miller, B. J.
- 1977 Landforms and Surface Geology, In *Soil Survey of Lafayette Parish, Louisiana*, by K. E. Murphy, J. Daigle, and L. J. Roetker, pp. 3-6. U.S. Soil Conservation Service Washington, D.C.
- Moore, C. B.
- 1913 Some Aboriginal Sites in Louisiana and in Arkansas. *Journal of the Academy of Natural Sciences of Philadelphia* 16(1):5-93.
- Murphy, K. E., J. J. Daigle, and L. J. Roetker
- 1977 *Soil Survey of Lafayette Parish, Louisiana*. U.S. Soil Conservation Service, United States Department of Agriculture, Washington, D.C.
- Neitzel, R. S.
- 1979 *Archeological Survey, Four Laning of Kaliste Saloom Road Extension*. O.E.C.S. Corporation Lafayette, Louisiana. Submitted to The Lafayette Department of Public Works.
- Neuman, R. W.
- 1984 *An Introduction to Louisiana Archaeology*. Louisiana State University Press, Baton Rouge.
- Neuman, R. W., and A. F. Servello
- 1976 *Atchafalaya Basin Archeological Survey*. Department of Geography and Anthropology, Louisiana State University. Submitted to New Orleans District, U. S. Army Corps of Engineers.
- Parker, Kathryn E.
- 1989 Archaeobotanical Assemblage. In *The Holding Site: A Hopewell Community in the American Bottom*, by A. C. Fortier, T. O. Maher, J. A. Williams, M. C. Meinkoth, K. E. Parker, and L. S. Kelly, pp. 429-464. FAI-270 Site Reports, Vol. 19. University of Illinois Press, Urbana.
- Phillips, P.
- 1970 *Archaeological Survey in the Lower Yazoo Basin, Mississippi, 1949-1955*. Papers of the Peabody Museum of Archaeology and Ethnology, Vol. 60. Harvard University, Cambridge.
- Prentice Thomas and Associates, Inc.
- 1995 *Cultural Resources Survey of Four Disposal Areas Along the Vermilion River Lafayette Parish, Louisiana*. Prentice Thomas and Associates, Inc. Submitted to New Orleans District, U.S. Army Corps of Engineers.

Rivet, P. G.

- 1975a *Vermilion River Bridge and Approaches at Pinhook Road, Route LA 182, Lafayette Parish.* Memorandum on file, Office of Highways, Louisiana Department of Transportation and Development, Baton Rouge.

- 1975b *Archeological Survey of LA 3171 from Junction I-10 to Junction U.S. 190, Lafayette and St. Landry Parishes, Louisiana.* Memorandum on file, Office of Highways, Louisiana Department of Transportation and Development, Baton Rouge.

Roberts, K. M.

- 1998a Plant Remains. In *Data-Recovery Excavations at the Hedgeland Site (16CT19), Catahoula Parish, Louisiana*, edited by Joanne Ryan, pp. 10-1 to 10-29. Coastal Environments, Inc. Draft report submitted to Vicksburg District, U.S. Army Corps of Engineers.

- 1998b *Cultural Resources Survey Along Portions of Jones Creek and Lively Bayou, East Baton Rouge Parish.* Coastal Environments, Inc., Submitted to the U.S. Army Corps of Engineers, New Orleans District.

- 1999 Plant Remains from the Marksville Site. Ms. on file, Coastal Environments, Baton Rouge.

Rolingson, M. A. (editor)

- 1982 *Emerging Patterns of Plum Bayou Culture: Preliminary Investigations of the Toltec Mounds Research Project.* Research Series No. 18. Arkansas Archeological Survey, Fayetteville.

- 1990 The Toltec Mounds Site: A Ceremonial Center in the Arkansas River Lowland. In *The Mississippian Emergence*, edited by B. D. Smith, pp. 27-49. Smithsonian Institution Press, Washington and London.

Russo, M.

- 1994 A Brief Introduction to the Study of Archaic Mounds in the Southeast. *Southeastern Archaeology* 13(2):89-92.

Saucier, R. T.

- 1974 *Quaternary Geology of the Lower Mississippi Valley.* Research Series No. 6. Arkansas Archeological Survey, Fayetteville.

Saucier, R. T., and J. I. Snead

- 1991 Quaternary Geology of the Lower Mississippi Valley. Map at scale of 1:1,100,000. In *Quaternary Nonglacial Geology: Conterminous U.S.*, edited by R. B. Morrison, Pl. 6. The Geology of North America Vol. K-2. Geological Society of America, Boulder, Colorado.

Saunders, R.

- 1994 The Case for Archaic Period Mounds in Southeastern Louisiana. *Southeastern Archaeology* 13(2):118-133.

- Scarry, C. M.
- 1995 Plant Remains. In *The Rock Levee Site: Late Marksville through Late Mississippi Period Settlement, Bolivar County, Mississippi*, edited by R. A. Weinstein, pp. 263-285. The Beulah Levee Project: Archaeology and History, Volume II. Coastal Environments, Inc. Submitted to Vicksburg District, U.S. Army Corps of Engineers.
- Smart, T. L., and R. I. Ford
- 1983 Plant Remains. In *Recent Excavations at the Edwin Harness Mound, Liberty Works, Ross County, Ohio*, by N. Greber, pp. 55-58. Midcontinental Journal of Archaeology, Special Papers No. 5. Kent State University Press, Kent, Ohio.
- Smith, C. J.
- 1993 *The Analysis of Plant Remains from Mound S at the Toltec Site*. Unpublished Master's thesis, Washington University, Saint Louis.
- Smith, B. D.
- 1986 The Archaeology of the Southeastern United States: From Dalton to de Soto, 10,500-500 B.P. In *Advances in World Archaeology*, Vol. 5, edited by F. Wendorf and A. E. Close, pp. 1-92. Academic Press, New York.
- Snead, J. I., and R. P. McCulloh
- 1984 *Geologic Map of Louisiana*. Map at scale of 1:500,000. Louisiana Geological Survey, Baton Rouge.
- Stoltman, J. B.
- 1978 Temporal Models in Prehistory: An Example from Eastern North America. *Current Anthropology* 19(4):703-746.
- Struever, S.
- 1964 The Hopewell Interaction Sphere in Riverine-Western Great Lakes Culture History. In *Hopewellian Studies*, edited by J. R. Caldwell and R. L. Hall, pp. 85-106. Scientific Papers No. 12. Illinois State Museum, Springfield.
- Struever, S., and K. Vickery
- 1973 The Beginning of Cultivation in the Midwest-Riverine Area of the United States. *American Anthropologist* 75:1197-1221.
- Styles, S., and K. Vickery
- 1981 *Faunal Exploitation and Resource Selection: Early Late Woodland Subsistence in the Lower Illinois Valley*. Scientific Papers No. 3. Archaeological Program, Northwestern University, Evanston, Illinois.
- Swanton, J. R.
- 1911 *Indian Tribes of the Lower Mississippi Valley and Adjacent Coast of the Gulf of Mexico*. Bulletin No. 43. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Toth, A.
- 1988 *Early Marksville Phases in the Lower Mississippi Valley: A Study of Culture Contact Dynamics*. Archaeological Report No. 21. Mississippi Department of Archives and History, Jackson.

- Ward, H. D.
- 1998 The Paleoethnobotanical Record of the Poverty Point Culture: Implications of Past and Current Research. *Southeastern Archaeology* 17(2):166-173.
- Webb, W. S.
- 1946 *Indian Knoll, Site Oh 2, Ohio County, Kentucky.* Reports in Archeology and Anthropology No. 4, Pt. 3. University of Kentucky, Lexington.
-
- 1977 *The Poverty Point Culture.* Geoscience and Man No. 17. Museum of Geoscience, Louisiana State University, Baton Rouge.
- Webb, C. H., J. L. Shiner, E. W. Roberts
- 1971 The John Pearce Site (16CD56): A San Patrice Site in Caddo Parish, Louisiana. *Bulletin of the Texas Archeological Society* 42:1-49.
- Weinstein, R. A., E. K. Burden, K.L. Brooks, and S. M. Gagliano
- 1978 *Cultural Resource Survey of the Proposed Relocation Route of U.S. 90 (L.A. 3052), Assumption, St. Mary, and Terrebonne Parishes, Louisiana.* Coastal Environments, Inc. Submitted to the Office of Highways, Louisiana Department of Transportation, Baton Rouge.
- Weinstein, R. A., E. K. Burden, S. M. Gagliano
- 1977 Archeological Phases-Coastal Louisiana. Paper presented at the 3rd annual meeting of the Louisiana Archaeological Society, New Orleans.
- Weinstein, R. A., D. E. Wiseman, L. A. Landry, and W. P. Glander
- 1979 *Environment and Settlement on the Southwestern Louisiana Prairies: A Cultural Resources Survey in the Bayou Mallet Watershed.* Coastal Environments, Inc. Submitted to Interagency Archeological Services, Atlanta.
- Whelan Jr., J. P., and G. Castille
- 1988 *A Cultural Resources Survey of Three Proposed Vermilion River Bridge Alignments in Lafayette Parish, Louisiana.* Coastal Environments, Inc. Submitted to PENSCO Professional Engineers and Land Surveyors, Lafayette, Louisiana.
- Wood, W. R., and R. B. McMillan (editors)
- 1976 *Prehistoric Man and His Environments: A Case Study in the Ozark Highlands.* Academic Press, New York.
- Workers of the Writer's Program of the Work Projects Administration
- 1941 *Louisiana: A Guide to the State.* Hastings House, New York.
- Yarnell, R. A.
- 1993 The Importance of Native Crops during the Late Archaic and Woodland Periods. In *Foraging and Farming in the Eastern Woodlands*, edited by C. M. Scarry, pp. 13-26. University Press of Florida, Gainesville.
- Yarnell, R. A., and M. J. Black
- 1985 Temporal Trends Indicated by a Survey of Archaic and Woodland Plant Food Remains from Southeastern North America. *Southeastern Archaeology* 4:93-106.